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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXIX CHICAGO, ILL., JUNE, 1916 NO. 6

Original Articles

THE DOCTOR AND THE PUBLIC HEALTH.*

CHARLES W. LILLIE, M. D.,
President, Illinois State Medical Society.
EAST ST. LOUIS, ILL.

Members of the Illinois State Medical Society:

The medical profession of today is agreed upon the proposition that in the conservation of human life prevention of disease is of the first importance. This attitude regarding disease has grown out of the better understanding of the nature of diseases, their causes, modes of transmission, and consequently in the means of prevention.

There was a time in the history of our profession, and this is not so very remote, when about all the doctor could hope to do was to treat those who might be suffering from disease; and this was all the public expected of him. And while it is still about all a large element in every community expect of doctors, it is by no means considered by the profession as its full duty to the public. The best proof of this lies in the many measures adopted at the earnest request of the doctors which have for their chief object the prevention of contagious or infectious diseases.

The growth of this attitude has kept pace with the development of our knowledge of the causation of disease; indeed, it has advanced faster, rather than lagged behind it, and more has been expected than the actual knowledge of primary causes of disease would warrant; the optimism of the profession traveling ahead of the scientific advances.

In 1914, at the annual meeting of the Illinois State Medical Society, Dr. Charles J. Whalen, in his presidential address, called attention to the "Increasing Death Rate after Middle Life," pointed out some of the causes tending to this increase, and indicated the remedies for this condition. This address, if heeded as its importance would warrant, should have been the means of preventing disease in many of those in advanced years, and of adding to the period of useful life, as well as contributing much to the comfort and happiness of those in advanced age.

That the increase in the death rate of those past middle life is actual is shown by statistics of unquestionable verity; that a very large part of this is needless is also clearly established, and the facts borne out by observations of many other competent authorities.

Dr. Joseph C. Bloodgood, of Baltimore, a distinguished guest of our Society at this meeting, has recently said:

> I have had the impression, especially during the past five years, that the relative proportion of benign lesions of the breast is steadily changing, and that the percentage of benign lesions is on the increase. This change was associated with a shorter duration of the disease, that is, women were seeking advice earlier. I did not realize, however, or even dare hope that this fortunate change would be as great as it proved to be. December 12th, the figures were completed in a study of 1,577 cases recorded in the Surgical Pathological Laboratory of the Johns Hopkins Hospital. Further investigation may change these figures slightly, but the evidence is sufficient to justify a preliminary report now, because, it seems to me, it is the most favorable and encouraging evidence we have up to date—so favorable, that it seems almost just to state that education of women and of the profession can cure cancer of the breast.

It is then shown that the percentage of benign lesions of the breast in women has increased from 32, in 1889 to 1900, to 54 in the five years from 1910 to 1915, and that the increase in the past three years has been 12 per cent. over the previous three years.

These figures are significant of the tendency in what we may well term "modern medicine," and, as suggested by Dr. Bloodgood it is the education of the people and the doctors which may be considered responsible for the change.

To quote again from Dr. Whalen:

*President's address delivered at the sixty-sixth annual meeting of the Illinois State Medical Society at Champaign, May 17, 1916.

Probably 50 per cent. of all cases of disease could be prevented by reasonable hygienic precautions, and the cultivation of life habits which tend to neutralize the strain of modern existence and build up a resistance to degenerative diseases in general. * * * The secret of prevention of degenerative diseases lies in the recognition of their earliest signs in an individual, and this can only be determined by frequent examination. The principle of frequent examination is applied by business or government to banks, steam boilers, steam vessels, life preservers, garbage cans, etc.; in fact to almost every institution or machine employed by man that can possibly go wrong, excepting the most delicately adjusted and wonderful machine of all—his body.

Frequent examination, then, is to be the secret of disease prevention and the prolongation of human life; frequent examination, or any examination of the average person can only be secured through the education of the individual. The education of the average individual must be the work of the doctors; at least must be initiated by them. Must always be directed by them. This education must begin at an early age, before habits are formed which tend to usher in those degenerative changes which are responsible for so many premature deaths. It must be continuous, as the public very soon forgets or disregards rules of conduct unless frequently reminded of the necessity of their observance.

What has been said of "degenerative diseases," and of "cancer of the female breast," can be said of many other diseases, and when the public is educated to the knowledge that the treatment of disease, like the treatment of other less delicate machinery, is the function of the educated and skillful physician, rather than that of the uneducated, unskilled and inexperienced layman, whether parent, friend, or merely the meddlesome neighbor, then may we hope to increase the length of life and the period of usefulness far beyond the present term.

No physician of even a single year's experience can fail to have seen cases in which "home treatment" had been carried out until life was in the greatest jeopardy, and too frequently the doctor called when the case appeared hopeless. Nothing short of profound ignorance could account for this. The excuse of the theory and practice of the "so-called Christian Science" is nothing more than a radical demonstration of this ignorance disguised under the cloak of a religion. If there could be anything further from "science," or anything more at variance with what is "religion" as it is understood today, we have no knowledge of it. A "religion" which will stand in the way of the proper care of the innocent and dependent child when attacked by disease can have but little to commend it to the humanitarian. A "religion" which neglects to care for the aged and infirm, ignoring the degenerative changes incident to old age, is not such as the Founder of the Christian religion would approve. And, while there are certain features of disease which do not need "medicine," who but the doctor is qualified to determine when such conditions exist?

How many cases of tuberculosis pass beyond the stage from which recovery is possible because of a neglect to consult the doctor in time can scarcely be estimated, but the number must be very great. Those who are in a position to know most upon this subject will agree that more than fifty per cent. of such cases are found among the incurables. That among these incurables every grade of treatment, from the more simple "home remedies" to the more dangerous patent, or proprietaries, have been employed for months before the doctor is ever consulted. Often these forms of "treatment" are supplemented by the still more disastrous treatment by the mail order quack.

Among the fallacies regarding tuberculosis the public need instruction as to the limitations of climate in the cure of this disease, a too ready belief that certain climates alone can effect cures, and that little regard need be paid to the other important agencies now recognized as essentials in the treatment of even the advanced case if the patient can only get transportation to the "land of promise"; which, it unfortunately proves to be in too many cases. A much more sound conservatism is now manifested by the profession in this respect; and, while it is well known that there are climates which do have advantages over others in the treatment of tuberculosis, it is also equally well known that climate alone, however good it may be, does not compensate for the lack of strict medical supervision, good food, the presence of friends and relatives, and the restfulness and peace of mind so necessary to the tubercular.

Another well grounded error strongly entrenched in the lay mind is that tuberculosis is always hereditary; that the fact that no near

relative has died from this disease offers evidence of immunity, and that it is incredible that it may find a victim in a family in which the parents and all other near relatives have lived to a good age, the contagiousness of the disease being entirely ignored. An active and persistent campaign against this error is imperative, and if waged with energy by doctors wherever opportunity offers, will result in marked improvement in the tuberculosis situation.

The heredity tradition and the more recent climate delusion closely follow home treatment, and patent or proprietary treatment, as contributors to the tuberculosis mortality, and taken together they form a triumvirate which has cost many thousands of lives, and are yet a continuing menace to the human race. Let us lend our aid to eliminate these destructive influences. It can only be done by educating the people on health questions.

Diseases of the heart are often treated at home by patent medicines when nothing more than rest in bed is needed, and every physician can recall cases of this kind where the false claims of the patent or proprietary medicine manufacturer have beguiled the victim with false hopes until the disease has passed beyond recovery.

An equally vicious feature of this question is that in which the sufferer makes a false diagnosis of heart disease, because of certain symptoms, when the actual disease is nephritis. That this has been done, and done frequently in the last ten years, is within the knowledge of every doctor. The strongest factor in this tragedy is the unscrupulous and lying advertising of the manufacturer of certain sure cures for "heart disease," which, through almanacs and newspapers, reach the homes of the rich and the poor, the learned and the unlearned; and, tragic as it may seem, find their deluded victims among all classes.

Drug and liquor habits formed through the injudicious use of patent, or proprietary, "dopes" has been extremely common in the past, and even now, after the more or less complete enforcement of the pure drug laws, is still finding its victims by hundreds. And the feature of this vicious business which is most pitiful is that many of the victims are actually in need of the best medical care, and under the delusions induced by the crafty advertising are postponing the examination until too late for any aid to be given by the most skillful physician or surgeon.

And, as the benefits of treatment of so many diseases are inversely as the time elapsing before treatment is instituted, the necessity for an early diagnosis and proper treatment can not be too strongly urged. By what other means than through education of the public will the doctor be consulted at the first symptom of disease?

There will probably be very little disagreement as to the need of more general enlightenment on health questions, but there may very well be a wide difference of opinion as to whence this educational effort should spring. Doctors may feel that they are already rendering to the public in the way of uncompensated service all they should be asked to contribute. This may be true of many, but it is also probably true that those who are giving most in this way are the very ones who are asking that more be done; that more opportunity be given for general public education; and, also those who are most ready to further contribute to this cause. But there is a reason why doctors should take the initiative in all this educational work on health matters. The reason is that they are the only persons who know what is needed and how to proceed to secure the desired end.

Others may take the stand that medical health officers are the proper persons to take the problem of public health in hand. That they receive pay for their services as such public health officers, and that it is unfair to ask others of the profession to take up their burdens without compensation. This may be true, but doctors are not of the class of those who will neglect a plain duty because someone else is not fulfilling his own obligations. And it is useless to deny that we are responsible for the community health. We owe it to our clientele to prevent disease when we can do so. We can now see our way clear to the prevention of diseases through a more generally enlightened public. The quoted words of Dr. Whalen, and of Dr. Bloodgood affirm this as a fact; experience of others sustain this position, and we can not do otherwise than to continue in the course so clearly pointed out.

One important feature regarding the failure of public health officials in the smaller communities to encourage the work of the "public health educator" is the smallness of salary he is paid, and another is that he is usually an appointee whose fitness for the position has nothing to do with his appointment. His is a political job,

and to hold it he must steer clear of conflicts except in defense of the "administration" of which he is a part. Such public health officers are usually taken from the ranks of the profession and have had no special qualifications except that they have been "supporters of the administration." The only remedy for such conditions would be to divorce health departments from all political affiliations, and to secure health officers who are competent to deal with all health questions. Such health officers would readily take an active part in everything pertaining to health questions. But as this thought is probably quite too "utopian" for present conditions, and as we must deal with things as we find them, it will be necessary for us to look to others for aid in this most important service to humanity.

Referring again to the lack of support by health officers in cities and towns we find that it is often due to a positive interference on the part of politicians whose "interests" would suffer by an enforcement of health laws. That orders to "clean up" premises which are dangerous to health are met by opposition, and all orders from headquarters must be modified or abandoned altogether. Such examples are not unusual. Further, it may be said that it only lacks the united support of the doctors of a community to overcome this opposition and maintain the dignity of the medical health officer, and secure for the public the best possible protection against contagious diseases. Unfortunately there are frequently found, not only "apathy" in the profession, but also active opposition.

On this point we might very well paraphrase the toast to "my country" by a distinguished patriot: "The medical Health Officer: may he ever be right; but right or wrong, the medical health officer." Lay support for health officers would be comparatively certain if the medical profession would act as a unit in its favor.

It may be asked why county medical societies do not take up this work? Why they do not arrange for public meetings for the sole purpose of instructing the people on health questions? This would appear to be in accord with the ethics of the profession, and if undertaken by the organized representative body in each community could not be stigmatized as "advertising," as would be the case if undertaken by the individual. If popular addresses by doctors could be made in every school, every church, every public hall, at least twice a year, much good would result, and the profession itself would not suffer by its disinterested activity in the public's general welfare. This is what societies might do. What they are doing in this line is very far short of what they might do, and what many believe they should do.

If the spirit of commercialism could be eliminated from the medical profession we might hope for a more general support for all measures looking to the prevention of disease; but so long as a patient is to be considered as an asset of more or less value, so long may we expect his exploitation to continue.

I have said that in order to secure the most favorable action in disease prevention we must begin our educational campaign early. This education should begin in the schools; and, while the primary idea with many superintendents and principals of schools is that the child should be educated only in the ordinary branches of knowledge, still there are many who are ready to join us in our efforts for disease prevention, and who will give us every encouragement in this work.

The superintendents of schools in the smaller cities have exceptional opportunities for engaging in this work through the "parent-teacher" associations, and through the various clubs and similar organizations connected with the school system. Principals of schools very readily lend their aid in the prevention of disease, as by this they secure a more regular attendance, and the result shows a greater efficiency. Boards of education should also take a greater interest in this because the cost of education is increased by irregular attendance. The general efficiency of a school is coming to be measured by its per capita cost for education; and any form of disease which hinders a child from maintaining its highest standard of efficiency adds to the per capita cost. Here is where early and frequent examination of school children will prove to be a good investment. Here is where education of the child in the care of his body will be reflected in the increased interest in health matters by the parent.

Pastors of churches have exceptional opportunities for the promulgation of health education, and it is not too much to expect from them a most hearty co-operation in our own efforts to enlighten the public in the preservation of health by preventive measures. It is found that very

little solicitation is needed in order to have one or two days each year devoted to a discussion of the laws of health. In connection with the church work along this line there are a number of minor clubs which have a close relationship to the homes, and the members of which are especially interested in the growing child, and through these organized bodies good supplementary work can be carried on among the younger set in every church. The "mothers' clubs" should be particularly valuable aids in this service, and when their attention can be secured much good wil certainly result.

The Young Women's Christian Associations throughout the state can render the greatest help in the education of the future mothers, and their co-operation should be sought in every place where branches exist. Many of these organizations conduct classes in physical culture, thus developing the bodies of the girls with marked benefit, and this might very well be supplemented by a course of lectures by physicians, dealing particularly with the health and its preservation; the dangers of delay if disease does attack them; the diseases to which they are most susceptible, and the means to employ to avert them. When we reflect that the health of the "mothers" of a nation is its best asset, we will realize the importance of maintaining the health of the young girls and young women.

These are some of the agencies through which we may reach and teach those in most need of health education, and all these may be reached by the doctors. It is not expected that any one doctor can undertake to carry on a propaganda alone in a community unless he is the only doctor, and it could hardly be expected that all these agencies can be brought into action in any place; but it is well within the probabilities that some of these can be reached by each physician in the city or village, and that the collective efforts of all will be felt throughout the entire community.

There is yet to be named an agency for good in every community; an agency which, properly directed and judiciously handled, is capable of leading all others in the beneficent service of "health education"; an agency which is often neglected as an aid, sometimes misdirected, and rarely positively antagonistic to anything suggested by the medical profession. This agent is the newspaper. Through the newspaper may be published all notices of meetings, with such matters pertaining to the subjects to be discussed as will tend to arouse an interest in it, and to bring out those whom it is desired to reach. In addition to this important service many papers will be glad to publish at intervals letters relating to health matters; suggestions regarding foods, sanitation, personal and public hygiene; and many topics of vital interest in the public health propaganda. The "power of the press" has been recognized in every avenue of human interest or endeavor, but its full power has seldom been directed against some of the most glaring faults of our community life. Few papers in this country take a stand against fraudulent drug compounds; many, indeed, carry advertisements of the most vicious and dangerous patent, or proprietary medicines, and act as lures for the unwary. Here the business office controls the policy of the paper; the editorial conscience, if there is one on the editorial staff, must be silent in order that the stockholders may receive their dividends. But to the honor of the great profession it can be said that there are but few great newspapers which show a lack of conscience; very few unwilling to lend their support to any effort for the betterment of the people. All honor to those papers which have refused to permit frauds to be imposed upon a credulous public through their columns. May their tribe increase.

Among the important features of the relation of the doctor to the public is that of united effort to secure such legislative action as will best serve the interests of the sick and afflicted. *United effort* is used advisedly, because of the sad lack of anything like unity in our action. It is not enough for the society to go on record as favoring, or of opposing certain measures. Individuals should act independently as well as collectively, and should bring their personal influence to bear upon the members of the house and senate whenever any important measure is up for action. All the fakers, and all such as seek to enter into the practice of medicine without a medical education; all those who seek to victimize the credulous and ignorant put forth every effort to secure legislation favorable to themselves, but very little is done by the doctors in this direction.

Can it be possible that the lack of this activity is due to the fact that the doctors have never asked for anything to benefit themselves, and for this reason are so little interested? Can it be that to secure the united support of the regu-

lar medical profession we must present something which will be for the benefit of doctors rather than for the people? It is unbelievable, but the fact remains that in the united efforts of the various cults and isms which control much of the legislation, a financial interest is the object in view; and, the converse is true of the attitude of the doctor and in the measures proposed for enactment into laws. Doctors are more harmed than benefited by laws which protect the people from contagious diseases; which provide hygienic and sanitary conditions under which they can live.

Ignorance of the laws of life and of the conditions tending to disease and decay are not confined solely to the illiterate. Much of this lack of definite knowledge is to be found in the educated, though many are now ignoring the plain facts and calling it a religion.

An evil of vast proportions has invaded the medical profession of this state; probably of all states; and its baneful influence is being reflected upon the public, as well as working a direct and positive injury to the medical profession. This evil is nothing more than "contract practice" for lodges, county boards and corporations, compensation for which is fixed by the lodge, county board, or corporation, and is wholly inadequate for the service rendered. If there is any reason why a doctor should serve any organized body, whether secret society lodge, county board of supervisors, or corporation organized for profit, for any less sum than would be charged an individual for the same service, such reason is not apparent. It is stated, on the authority of one who has been in the corporation service that the salary he received from a million dollar enterprise was less than twenty-five per cent. of what he would have received at the usual rates for the service rendered. The profession of that community was defrauded out of the seventy-five per cent. which was its just due.

This evil is of far greater importance than the "free dispensary evil" of which we have frequently heard so much, and might be largely prevented by action of the county societies, some of which have prohibited members from taking any "contracts" for professional service. Counties which have adopted these stringent rules are the best organized, and have the most useful and active societies in the state. May their number increase.

But this is not the only feature which is to be condemned. The quality of service given to the employee of a corporation is often far inferior to that which he would receive if he were employing his own physician; indeed, if he employed the same physician who is in the service of the corporation he would often secure much better attention. This is so well known that many persons refuse to permit the "company doctor" to treat them when injured. Managers of corporations who employ a surgeon frequently coerce their injured employees in continuing the services of the "company doctor" by a threat to refuse to pay the doctor bill if any other than the "company doctor" is employed. In some cases they are told it is the only way to "hold their jobs." Fitness for the work has not been considered a requirement by lodges, counties, or corporations, when selecting a "contract doctor," and the result is that many inexperienced surgeons are trusted with service demanding the most skillful and best prepared of the profession. The law should be invoked to protect the employee from incompetent medical and surgical care; where laws are inadequate they should be amended.

As emphasis to what I have said about self treatment, or the pernicious "home treatment," of which doctors hear so much, I feel that Dr. Bayard Holmes expresses the facts with great clearness when he says: "It seems to me that the modern tendency for every man to become his own doctor is most productive of an abnormal state of mind and body. Better that every man were his own lawyer, his own electrician, his own plumber, his own engineer." In plain words it would be far safer if the matters relating to business affairs were to be left to the unskilled, and those relating to the physical and mental well-being of the individual carefully watched over by trained and competent advisers. That the public may be finally brought to realize that this is true is a hope. Let us encourage this idea and work for its complete and perfect fruition.

229A Collinsville Ave.

THE MEDICAL MECHANISM FOR WAR IN THE U. S.

Lt. Col. W. B. Banister, M. C., U. S. Army.
CHICAGO.

INTRODUCTION.

The present plans for the military forces now organized contemplate four infantry divisions of regulars, numbered from 1 to 4 inclusive, and 12 infantry divisions of militia numbered from 5 to 16 inclusive. But three divisions of regular infantry and one division of cavalry are organized on paper at present. This scheme does not provide a well balanced army, owing to the lack of cavalry, so in this discussion I have adopted 8 infantry divisions for each contingent and three divisions of cavalry. This gives 16 infantry divisions and 6 cavalry divisions for the first line of 400,000 men. I doubt whether more than 8 divisions could be organized from the militia, owing to the many deficiencies in units. There are a little less than 8 regiments of cavalry in the militia, which is just enough to provide one cavalry regiment for the 8 infantry divisions of militia.

THE MEDICAL MECHANISM FOR WAR IN THE U. S.

This paper is intended to convey the idea of the relation and parts of a medical machine operated for the purpose of properly caring for the sick and wounded, and preserving the health of armies during the operations of war. The military system of nations, including the medical department, appears to have developed from their geographical position and the incidents of their history pointing out to them the wisest course to pursue. The territory of Germany having been harried many times in her history by her neighbors, she converts her male population into efficient soldiers to prevent in future a repetition of the incidents of the past. England being an island has developed her military strength in the character of sea power as vital to her continued existence and the protection of here oversea possessions. The United States in the early period of her history, confident of the protection against invasion afforded by the oceans that wash her shores, has heretofore contented herself with the development of a military organization sufficient only for a national police force. The character of its organization was determined by a peculiar circumstance. The settlements on the Atlantic seaboard were constantly extending westward, and those on the Pacific coast eastward, which resulted in the American Indian being forced into what was formerly known as the Great American Desert and consisting of a vast territory practically in the heart of the country extending from Canada to the Gulf of Mexico and the northern border of Mexico. For many years we spoke of the eastern and western edge of the Indian country as the frontier. The control of this savage and wily enemy intervening between the east and west, was for many years the most pressing necessity from a military standpoint and determined to a great extent the development of our military system. The regular army being small, from 13,000 to 15,000, and the territory to be controlled large, it was necessary to establish military posts or stations each garrisoned by small detachments of one or more companies. There were no railroads at this period in this area, as the first transcontinental railroad was completed in 1866. These posts were bases to shelter the troops, and in which supplies could be accumulated, and from which the neighboring territory could be controlled. Under this protection the west was settled, its railroads built and in time the Indian eliminated as a disturbing factor. This system was the antithesis of preparation for war as it entailed numerous subdivisions of our army in isolated positions, instead of concentration at strategic points. There was no organization of brigades, divisions, corps, etc., and on the outbreak of the Spanish-American War this organization had to be effected after the declaration of war, and brigades and divisions were commanded by officers who had rarely if ever commanded a larger force than a regiment, in the field. After the Indian had been eliminated as a military consideration, the post system could not be eliminated, though its continuance was a positive military disadvantage, because of local political influence, unwilling to lose the pecuniary benefits this system afforded. Medical service was unorganized. There was a Medical Corps members of which were assigned to posts and the surgeon in charge designated as the Post Surgeon. The post hospital was the only hospital. There were no mobile field hospitals nor were there any until after the Spanish-American War, as a permanent unit in our medical organization. This system existed at the outbreak of the Civil War, with no organized

lines of medical assistance in battle, and with a Medical Corps too small numerically to be effective. The same system and lack of organization existed at the outbreak of the Spanish-American War, the experience and the organization gained during the last two years of the Civil War having been apparently forgotten like a lost art. The suffering from lack of organization and disease during the Spanish-American War is too fresh in your memory to require further reference, but I can illustrate to you conditions during the first two years of the Civil War by reading to you the following letter written after the war had been in progress more than a year, and ten days after the beginning of the battle to which it refers, the second battle of Manassas:

Surgeon-General's Office,
September 7, 1862.

Honorable Edwin M. Stanton,
Secretary of War.

SIR:—I have the honor to ask your attention to the frightful state of disorder existing in the arrangement for removing the wounded from the field of battle. The scarcity of ambulances, the want of organization, the drunkenness and incompetency of the drivers, the total absence of ambulance attendants are now working their legitimate results, results which I feel I have no right to keep from the knowledge of the department. The whole system should be under the charge of the medical department. An ambulance corps should be organized and set in instant operation. I have already laid before you a plan for such an organization which I think covers the whole ground, but which I am sorry to find does not meet with the approval of the Commander-in-Chief. I am not wedded to it. I only ask that some system may be adopted by which the removal of the sick from the field of battle may be speedily accomplished and the suffering to which they are now subjected be in future as far as possible avoided. Up to this date six hundred wounded still remain on the battlefield in consequence of an insufficiency of ambulances and the want of a proper system for regulating their removal in the Army of Virginia. Many have died of starvation, many more will die in consequence of exhaustion and all have endured torments which might have been avoided. I ask, Sir, that you give me your aid in this matter; that you will interpose to prevent a recurrence of such consequences as have followed the recent battle, consequences which will inevitably ensue on the next important engagement if nothing is done to obviate them. I am, Sir, very respectfully,

Your obedient servant,
WM. A. HAMMOND,
Surgeon-General.

This lack of organization existed for still another year until Jonathan Letterman, Medical Director, Army of the Potomac, put into operation a system which was effective. It has been copied by nearly all civilized nations and is the essential basis of our present system. After the organization of the General Staff of the Army attention was directed to moulding this post system into such shape as to give it a form, as far as its inherent disadvantages permitted, suitable for war. Successive orders of the War Department effected the division of the United States into four military departments—the Eastern, the Central, the Western and Southern. The troops stationed at the various posts in each department were organized into brigades and the brigades into divisions so that each department had an infantry division at peace strength, except the Southern Department, which has a cavalry division. So now we have two systems, a peace or post system supplied with the wagons, ambulances, etc., necessary to do the work at the post and care for the sick, with surgeons and hospital corps men, and a war system. To change from the post system to the war system, a regiment moving out from its station to the camp of mobilization would take sufficient of the post transportation or all of it if necessary, to make up its field trains, regimental infirmary, ambulances and wagons so that when mobilized into a division in each department, there would be sufficient transportation to provide for the organization of two field hospitals and two ambulance companies and four camp infirmaries. So that with the two already organized in each department as permanent units, the infantry division would have four field hospital companies, four ambulance companies, four camp infirmaries, and each regiment would have a pack mule to carry the regimental aid station equipment. The medical and hospital corps personnel would be detailed from the posts the troops were serving in to accompany them in the proportion required in the Tables of Organization, or to be subsequently expanded into that proportion. In order to avoid leaving any of the trained medical officers at the posts, to take care of the sick left by the outgoing troops, a practicing physician in the vicinity of the Medical Reserve Corps, previously designated as a locum tenens, is directed to take charge of them. He attends to his practice as usual, but attends the sick in the post hospital in addition for a certain compensation. When the organization of the division

made up from the accretions from the posts in each military department, is completed and expanded to war strength, it will consist of:

Headquarters,
3 Brigades of Infantry; 3 regiments each.
1 Regiment of Cavalry.
1 Brigade of Light Artillery (2 regiments).
1 Pioneer Batallion of Engineers.
1 Field Batallion of Signal Troops.
Trains—Commander of Trains, Military Police, etc.:
1 Ammunition train.
1 Supply train.
1 Sanitary train.
1 Engineer train.

While the combatant strength of an infantry division is 20,673, the aggregate strength is 23,131 and the medical department of the division is charged with the medical care of the latter number. An infantry division occupies 15.4 miles of road space. It is necessary for you to know that the sanitary train consists of four field hospital companies, each with six medical officers, 9 non-commissioned officers and 58 privates first class and privates, and with a bed capacity of 216, hauled in seven four mule wagons. Four ambulance companies, each with 5 medical officers, 9 non-commissioned officers, and 70 privates first class and privates of the Hospital Corps and twelve four-mule ambulances, three wagons and four pack mules.

Four camp infirmaries, each with one sergeant, Hospital Corps, and one four-mule wagon to haul it in. These four camp infirmaries are part of the twelve regimental infirmaries brought by the twelve regiments of the division from their posts to the mobilization camp. The equipment of the other eight is turned into the medical supply officer of the mobilization camp for storage and the eight extra wagons and all the ambulances constitute part of the new field hospitals and Ambulance Companies to be organized as previously described. The medical personnel of a division are 99 medical officers and 889 enlisted men of the Hospital Corps, including non-commissioned officers. The division is the great administrative and tactical unit and the basis of Army organization. The lines of medical assistance in battle of an army are the lines of medical assistances of each of its divisions operating on the same principle plus the lines of communication. A field army is composed of two or more divisions. An Army of two or more field Armies. It will be of interest now to consider what duties the medical department is charged with in war and the facilities and equipment provided for discharging them.

DUTIES OF THE MEDICAL DEPARTMENT.

1. The initiation of sanitary measures to insure the health of troops.

2. The direction and execution of all measures of public health among the inhabitants of occupied territory.

3. The care of the sick and wounded on the march, in camp, on the battlefield and after removal therefrom.

4. The methodical disposition of the sick and wounded, so as to insure the retention of those effective, and relieve the fighting force of the non-effective.

5. The transportation of the sick and wounded.

6. The establishment of hospitals and other formations necessary for the care of the sick and injured.

7. The supply of sanitary material necessary for the health of troops and the care of the sick and injured.

8. The preparation and preservation of individual records of sickness and injury in order that claims may be adjudicated with justice to the government and to the individual.

1. The sanitation in each division is prescribed in sanitary regulations drawn up by the division surgeon and after approval by the commanding general is issued by him in the form of an order, thereby making compliance an obligation on every one as in the case of any other order. In each regiment a sanitary squad is organized by the regimental surgeon which has jurisdiction over its camp area. The regimental surgeon is required to make a daily sanitary inspection, and the sanitary inspector of the division inspects all organizations of the division, under the supervision of the division surgeon, to insure compliance with the sanitary orders. At the headquarters of the division is a division surgeon, a sanitary inspector and an assistant (Major, Medical Corps) to the division surgeon, to represent him when necessarily absent. Those camp areas not under the jurisdiction of organizations are taken care of by a sanitary squad, under command of the sanitary inspector. Each organization is provided with the prescribed materials for carrying out venereal prophylaxis

and each soldier on enlistment is vaccinated against smallpox and typhoid fever. I do not believe the medical department of militia and volunteer organizations with a knowledge of sanitation equal to that of the medical corps of the regular army, could obtain as good results because the latter prepares to obtain results before taking the field. A medical officer of the army is detailed as a professor of hygiene at the U. S. Military Academy and lectures to the Cadets with the object in view of giving them a knowledge of sanitation sufficient to secure their co-operation, when juniors, and to appreciate the importance of the recommendations of their medical officers on attaining to a position of command. Medical officers at every garrisoned post lecture to the junior line officers on this subject during the period of the garrison school and these line officers are required to pass an examination on hygiene before they are considered qualified for promotion. The enlisted men of each garrison are given lectures on hygiene and venereal prophylaxis twice each month. The co-operation secured by dissemination of instruction on this subject, and by this method, is one of the most important factors in the brilliant results obtained since the Spanish-American War. To illustrate this difference in sanitary results between the volunteers and regulars compare the morbidity reports of the 2d Division 7th Army Corps 10,759 strong, in camp at Jacksonville, Fla., 1898, for about 5 months, with regard to typhoid fever, and the 2d Division U. S. Army, 12,000 strong, in camp at Texas City and Galveston for 2½ years did not have a single case of typhoid fever. The climate of both places is about the same and both divisions were in tents.

2. In occupied territory it would be necessary, by house to house inspection, to determine the presence of contagious or infectious diseases. The medical department of the army should work in conjunction with local boards of health, if still performing their functions. Contagious hospitals should be established and Provost Marshals instructed by proper authority to furnish guards. Troops should be kept out of seriously infected towns as far as military necessity permitted. If local civil organization was disrupted it might be necessary to establish a hospital for the surgical assistance of the civil population, and perform such other functions as occasion demanded.

3. The medical personnel of a regiment of infantry consists of one major, 3 captains or lieutenants, 4 non-commissioned, and 20 privates of the Hospital Corps. Each regiment on the march is furnished with an ambulance by an ambulance company for emergency cases, and when filled diagnosis tags affixed to sick or injured would authorize such cases to ride on the wagon trains following the column. Each Hospital Corps private carries emergency supplies in a Hospital Corps pouch, each medical officer's orderly carries an orderly pouch with more complete supplies for the medical officer to use, and each non-commissioned officer an emergency case containing medicines, etc. This equipment furnishes sufficient supplies for sick and injured on the march till camp is reached and they can be transferred to the nearest field hospital if necessary. On reaching camp, one camp infirmary for each brigade is established in a convenient location, and the necessary personnel of medical officers and Hospital Corps are detailed to administer it by the senior medical officer of the brigade. At this infirmary sick call is held to determine whether a soldier should be excused from duty, minor ailments and injuries attended to, and serious cases admitted pending transfer to a field hospital. The other duties with which the medical department is charged can be best illustrated by giving you a demonstration of the lines of medical assistance in battle by means of this schematic drawing. This demonstration will give you a concrete idea of the subject and enable you to clearly understand subsequent references to field units prepared in peace for use in war, and necessity for preparation. After the regiments are deployed and advance into action, the regimental aid station is not established till the regiment is halted by the volume of fire. The regimental surgeon establishes this station, the equipment of which is carried on a pack mule. Each soldier carries on his belt a sterile primary dressing in a sealed metal case and when wounded applies it himself or gets a comrade to do so. The medical and Hospital Corps detachment operate from the regimental aid station and bring to it by litters or otherwise all wounded they can reach during the action or in lulls in the action. There is one of these stations to each regiment. While the wounded are being collected in the regimental aid stations, the Ambulance Company of the brigade establishes as far for-

ward as possible a dressing station, the equipment of which is carried on four pack mules. From this dressing station, the litter-bearer section goes forward and brings the wounded from the regimental stations to the dressing station, where they are given attention and subsequently transferred to a field hospital by the 12 ambulances of this Ambulance Company. The same procedure is carried out in each brigade engaged. The four field hospitals of a division are evacuated by a transport column to the two evacuation hospitals of the line of communication, allowed to each division. Each has a capacity of 324 beds with 14 medical officers and 153 enlisted men of the Hospital Corps. Hospital trains transport the patients from the evacuation hospitals to the base hospital, one of which is allowed for each division. The base hospital has a capacity of 500 beds, 19 medical officers, one dentist, 153 enlisted men of the Hospital Corps, and 46 female nurses. The hospital train composed of 10 cars has a capacity of 200 beds and a personnel of 3 medical officers and 27 enlisted men of the Hospital Corps, and are allowed in proportion of one to each division. From the base hospital the wounded who will probably not recover during the campaign are sent by rail to general hospitals into the interior or by hospital ships to the home country. We have no hospital ships; by modifying the equipment of thirty regular regimental hospitals we can equip with hospital supplies 30 chartered transports. Ten of these modified regimental hospitals are located at Fort Monroe, Va., ten at the New York Depot, and ten at Fort Crocket, Galveston, Texas, as these are strategic points. A convalescent camp is established at the base in connection with the base hospital to relieve congestion. One Medical Supply Depot is established at the base for each division with a personnel of two medical officers and 15 Hospital Corps men. The regimental medical supplies are replenished after a battle from the camp infirmaries which carry a reserve and the camp infirmaries draw on the base medical depot or an advanced medical depot. In the United States we have a general medical supply depot in New York, St. Louis and San Francisco. It is perfectly evident that the slightly wounded who can furnish their own transportation would reach the field hospital of a division before the seriously wounded. The slightly wounded are usually 40 per cent. of the casualties and would simply swamp these hospitals. To avoid this the battle order usually specifies where a station for slightly wounded will be established and such cases are directed there. The four camp infirmaries may be utilized for this purpose during a battle and the personnel drawn from the train sanitary detachment consisting of 3 medical officers and 12 enlisted men of the Hospital Corps. For the general hospitals in the interior the post hospitals would be utilized and their capacity increased by building pavilion wards. The plans for the base hospitals and the pavilion wards are now on file in the surgeon general's office and are of material that can be purchased in any community and erected by ordinary carpenters. The personnel for these general hospitals would be determined by their capacity. We have four general hospitals of a permanent character in operation in the United States now. The Walter Reed Hospital near Washington, D. C., The Letterman Hospital at San Francisco, The Army and Navy General Hospital at Hot Springs, Ark., for special cases and The Fort Bayard Hospital for cases of tuberculosis.

Recruiting Stations. It is evident, that on a sudden expansion from peace to war the recruiting stations should be equipped for immediate operation. To avoid delay the equipment for physical examinations and identification work, vaccination against typhoid and smallpox, sufficient for 200 stations has been collected and is held in readiness by the medical department.

First Aid Packages. At the front every officer and soldier, combatant and sanitary, is required to carry on his belt a first aid package. There are on hand 373,000 first aid packages and 17,000 shell wound packets and contractors promise to delive 10,000 per day of the former after procuring the brass for the cases, which will require about three weeks.

Hospital Corps and Orderly Pouches. These pouches carried by the privates first class and privates of the Hospital Corps are now furnished to all in service and in addition a small supply is on hand at depots. It is not the intention to add to this supply as it is contemplated to do away with them and substitute a belt with pockets. The orderly pouch particularly is unsatisfactory for mounted service.

Emergency Cases. These are carried by the non-commissioned officers of the Hospital Corps. The non-commissioned officers of the regular army and militia in service are now supplied with them and a supply is kept on hand in the medical supply depots for first needs.

Brassards. In war time each non-combatant is required to wear on the left arm a red cross brassard, and all not uniformed, such as members of the Red Cross Association operating with the Army, are required to wear one stamped and have a certificate of identification. There are

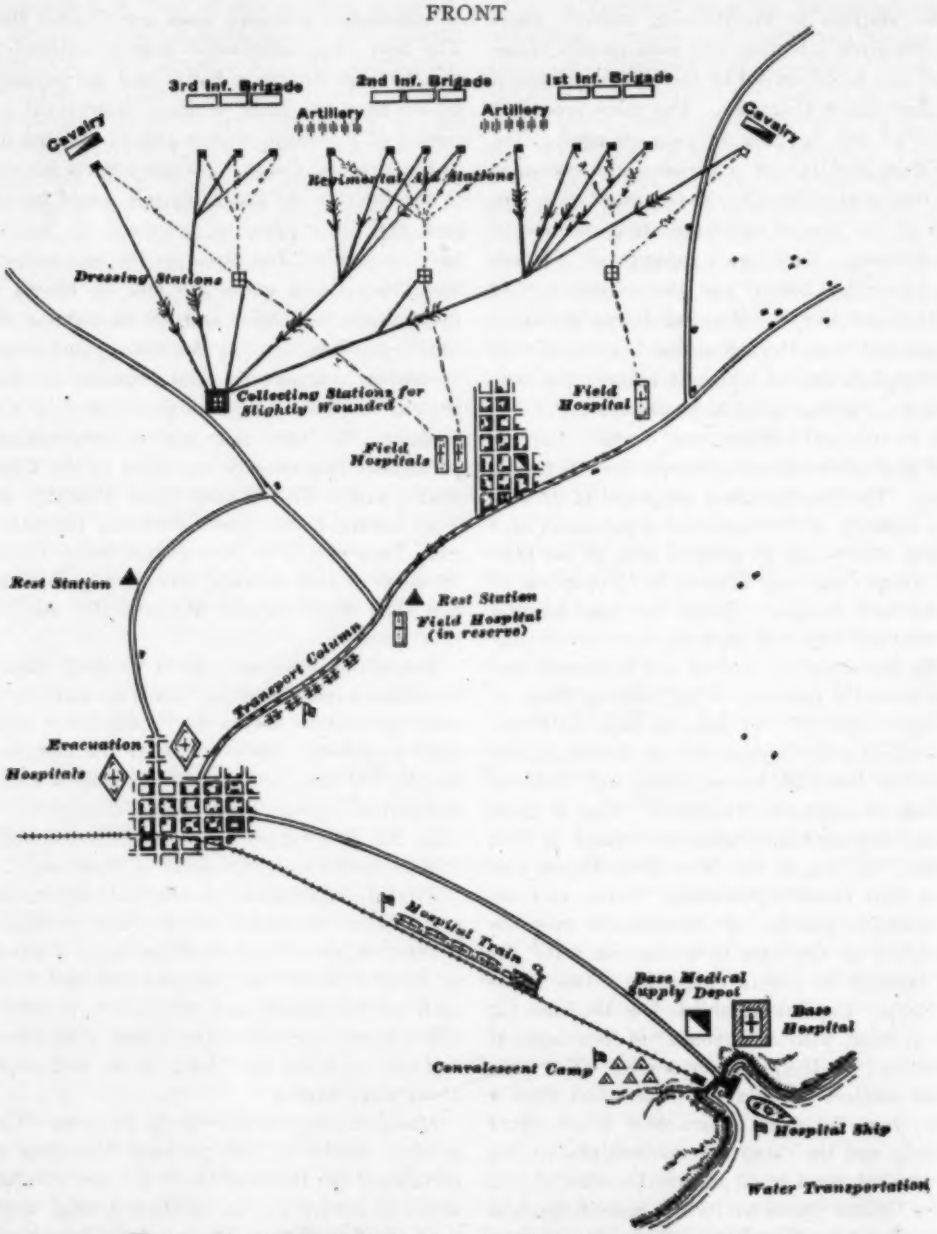

Fig. 1. Lines of Medical Assistance in Battle From Front to Rear

18,000 on hand, but they could be manufactured quickly in sufficient numbers.

To determine what we would need in personnel and field units in time of war it is necessary to assume what organization would be the most probable in war to give an approximate idea, and to compare it with what we have, and to also assume that the entire regular army would be mobilized in the United States to defend the home country without regard to the oversea possessions. The authorized strength of the regular army is 111,305 and the hypothesis is to expand it to a force of 200,000 men whose normal organization would be 8 infantry divisions and 3 cavalry divisions together with the auxiliary troops pertaining to field armies and armies. There are 129,000 militia and if expanded to a strength of 200,000 and organized similarly to the regular contingent would give a first line of defense of 400,000 troops.

THE REGULAR ARMY CONTINGENT.

Medical Personnel. With an army of 200,000 the sick and wounded would never be less than 10 per cent., which would require 20,000 beds and with each base hospital of 500 beds, 40 such base hospitals would be required. Bearing this in mind the following medical personnel would be required for the 8 infantry divisions and 3 cavalry divisions provided there was a single line of communications:

At the front	955
Line of Communications	320
At base hospitals	760
Total	2,035

The above table shows that in war we need 1 per cent. of medical officers. There are in regular medical corps 444, which is nearly 4 per thousand of the recently authorized strength of 111,305 combatants. This recent increase of the regular army did not bring a corresponding increase in the proportion of medical officers. In the reorganization of the army in 1908 the medical corps was put at 7 per thousand which was sufficient in peace, but this reorganization was on a basis of 65,000. Since then the army has been increased to first 92,973, and now to an authorized strength of 111,305 without any corresponding increase in the medical corps. The Hay bill now before Congress provides for 7 per thousand the required proportion in peace, and the Chamberlain bill which provides for 5.3 per thousand in peace. As to what will be adopted by Congress at the date of this writing is in the lap of the gods. Having, therefore, not sufficient regular officers to perform the required duties in peace, 109 of the Medical Reserve Corps and 15 Contract Surgeons have been called into service. The number of regular officers now provided is insufficient to provide inspector-instructors to properly train the medical officers of the militia and this should be a matter of interest and thought for the entire medical profession of this country which cannot afford to have the medical profession lowered in public estimation by a breakdown in medico-military lines, owing to lack of trained medical officers as occurred in the Spanish-American War. In this connection I desire to read to you the resolutions passed by the Southern Medical Association at Dallas, Texas, November 8-11, 1915:

COPY OF RESOLUTIONS PASSED BY THE SOUTHERN MEDICAL ASSOCIATION, AT DALLAS, TEXAS, NOVEMBER 8-11, 1915.

WHEREAS, The President and the Honorable Secretary of War have announced in the public press that a scheme for the reorganization of the Army will be presented to Congress at its coming session, which will materially increase the military establishment, and

WHEREAS, We recall the indignant protests and criticisms of the Nation at the failure to provide adequately for the sick and wounded at the beginning of the Civil War and the Spanish-American War, and

WHEREAS, It is known that this failure was due to the lack of a sufficient number of medical officers in the regular army and a means for increasing the medical establishment at the outbreak of war, and

WHEREAS, In spite of the lessons of the Spanish-American War, which were fresh in mind in the reorganization of the Army in 1901, the Medical Department was not properly increased, and no provision was made for its expansion in time of emergency, and

WHEREAS, to correct the defects in the 1901 legislation, subsequent legislation was necessary in which the medical profession of the United States was called on to assist; therefore, be it

Resolved, By the Southern Medical Association, in session at Dallas, Texas, that the Secretary of War be petitioned to make adequate provision in the reorganization of the Army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision should aggregate a proportion of medical officers of, at least, seventy-five hundredths of one per cent. of the enlisted strength of the army, of such numbers as the Surgeon-

General of the Army may deem necessary, and be it further

Resolved, That the Secretary be petitioned to make provision in this reorganization for the expansion of the Medical Department at the beginning of war, by calling into service in the Medical Reserve Corps physicians from civil life, who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit.

Realizing the deficiencies in number of the Medical Corps, the Surgeon-General's office has brought about the organization of the Medical Reserve Corps. There are 1,460 members constituting this reserve for the regular army. In order to give them some training for their prospective duties, camps of instruction were held in the summer of 1915 which were attended by 173. Seven hundred of the total number have received some instruction either at camp or through a correspondence course carried on by the Army Field Service and Correspondence School for medical officers at Fort Leavenworth, Kan. More than half the number have received no instruction whatever. Unfortunately members of the Medical Reserve Corps attending these encampments pay the cost of their transportation and receive no pay, whereas militia officers have their expenses paid by the government and receive a salary in addition during the period of the encampment. It would seem the Medical Reserve Corps should secure equal consideration, otherwise the numbers attending will be small because of the expense.

DENTAL CORPS.

The Dental Corps of the army consists of 1st Lieutenants and Acting Dental Surgeons. The original appointment is as Acting Dental Surgeon and on passing a satisfactory examination after 3 years' service, promotion to 1st Lieutenant ensues. The law allows one per thousand of strength. There are in service 37 Dental Surgeons and 36 Acting Dental Surgeons. This number is less than 1 per thousand of the present army strength, but it is believed this corps could be sufficiently expanded in time of war to meet necessities. The Surgeon-General exercises jurisdiction over this corps.

FEMALE NURSE CORPS.

The law provides for one superintendent of nurses with a salary of $1,800, chief nurses, nurses, and reserve nurses. Reserve nurses are called into service as required. No difficulty would be experienced in securing the number of trained female nurses in time of war required. They are only used at the fixed hospitals such as base and general hospitals. They are only employed at present in the general hospitals and such post hospitals as have somewhat the character of general hospitals, as post hospitals used as base hospitals for troops in the field, such as at present are on duty on the Mexican border.

HOSPITAL CORPS.

Consists of sergeants 1st class, sergeants, corporals, acting cooks, privates 1st class and privates, and the total number allowed by law at present is 5,388. The present ratio of Hospital Corps men to combatants is 4.8 per cent. In time of peace 5 per cent are needed, and in time of war 10 per cent., owing to the large number of sick and wounded in modern war. At the ratio of 5 per cent. our army of regulars of 200,000 would require 10,000. It would seem advisable that the law should provide a definite ratio of 5 per cent. in peace to be increased to 10 per cent. in war. To give some idea of the large number of sick in armies under circumstances which prohibit the employment of a trained medical personnel, dispatches of November 15, 1915, stated that 90,000 sick had been taken from the single area of the Gallipoli Peninsula. If we allow 5 per cent. of Hospital Corps men on expanding to war strength there would be 10,000 required and there are 5,388. There must be several thousand hospital corps men who have returned to civil life and no doubt a large proportion of them would join the colors on the outbreak of war. Any deficiency would have to be made up by enlisting recruits and subsequently instructing them. War is waged on so huge a scale now, that a nation such as ours, which has never been prepared in peace for war, cannot now do so without serious sacrifices with regard to national expense. To do so would be so novel to the American people that they could with difficulty become reconciled to its extent, but national existence may depend on it, so we should be willing to pay the price.

From the above figures it is evident that for any army of 200,000 regulars there would be needed 2,035 medical officers. That taking every medical officer in service at home and abroad we would have 444, with all the Medical Reserve

Corps called into service 1,460, total, 1,903. There would still be lacking 132. These 2,035 are the number required in the theatre of operations and makes no allowance for the medical service of home territory, including administration, supply depots, general hospitals now established and the additional general hospitals that it will be necessary to establish, convalescent hospitals, recruit depots, concentration camps, hospital trains, hospital ships, and for the medical service of the immobile part of the army, the coast artillery. The coast line of the United States is divided into the North Atlantic Coast artillery district, the South Atlantic and the Pacific Coast artillery districts. Unfortunately too, members of the Medical Reserve Corps, which was organized as a reserve for the regular army, are permitted to hold commissions in the organized militia, and the volunteers when raised. About ninety members of the Medical Reserve hold commissions in the militia and would not be available, and what number would prefer the rank of major and captain in the volunteers rather than that of 1st lieutenant in the Medical Reserve Corps is a matter of speculation. However, both factors would materially detract from the 1,460 carried on the official list. In time of war it is a very conservative estimate to allow one per cent. of medical officers. Now let us consider briefly what material there is on hand compared with what will be needed to carry on the important service of the zone of the advance and line of communications. If the former breaks down, then the conditions described in Surgeon General Hammond's letter will recur:

FIELD UNITS REQUIRED—ZONE OF THE ADVANCE.

Field hospital companies for eight infantry divisions	32
Field hospital companies for three cavalry divisions	3
Total field hospital companies	35
Ambulance companies for eight infantry divisions.	32
Ambulance companies for three cavalry divisions..	9
Evacuation ambulance companies for eleven divisions	11
Total ambulance companies required	52
Camp infirmaries for eight infantry divisions	32

AVAILABLE FOR THE ZONE OF THE ADVANCE.

Field. Seven field hospital companies are organized and in service, six of them in the United States. Thirty-five would be required. There are on hand in the medical supply depots in the United States and our foreign possessions the material, exclusive of personnel, wagons, animals and harness, 53 field hospitals, which with the seven organized would make 60. The regular contingent then of 200,000 could spare the material of 25 field hospitals to the contingent of 200,000 militia if required. This material is assembled in units and can be forwarded complete with the exceptions noted, on telegraphic authority. Each of the 30 regiments of infantry now organized would bring one wagon complete for use of the medical department. So would each of the 15 regiments of cavalry and the 6 regiments of field artillery, to the mobilization camp, making 51 wagons. These would be sufficient to equip with transportation the 32 camp infirmaries of the 8 infantry divisions, and have just enough wagons for 3 field hospitals (less 2 wagons) of the 28 to be supplied (35—7 organized =28). So after war began under present conditions wagons, mules and harness for 25 field hospitals would have to be procured for the regular army. These items are furnished by the quartermaster corps, not by the medical corps.

Ambulance Companies. There are organized and in service 8 ambulance companies. For the eleven divisions 41 would be required. The materials, exclusive of personnel, wagons, mules, harness and ambulances, for 53 are stored in depots at home and in our foreign possessions. This would permit the material of 20 ambulance companies for the use of the militia if it were not that the material of 11 ambulance companies would be required for the 11 evacuation ambulance companies on the line of communications. Therefore, only 9 could be spared for the militia contingent. All the transportation, allowed in the Tables of Organization, to be brought from the posts, except ambulances complete, has been used up in equipping the camp infirmaries and 3 field hospitals. Each regiment would bring two ambulances complete, making 102, enough to equip 8½ ambulance companies out of the 33 still to be equipped. There are on hand, however, 427 mule ambulances. Deducting the 102 brought from posts, there would be enough ambulances for the 11 divisions, but there would be a shortage of 124 to equip the 11 evacuation ambulance companies of the line of communications. But 24½ companies would have no mules

or harness, and these would have to be furnished at the mobilization camp by the quartermaster's department by purchase or otherwise, together with the three wagons, mules, and harness required by each of 33 ambulance companies in the Zone of advance not equipped with same. (41 required — 8 organized = 33.)

The engineer battalions, signal corps battalions, etc., would not bring any transportation from their stations for the use of the medical department, except one pack mule. This is the most favorable presentation of conditions that can be made, where in our need we concentrated for the defense of our homes all our resources. We could not, however, very well abandon the Panama Canal, or if attack came from the west, the Hawaiian Islands, which constitute our outpost for the defense of our Pacific Coast. In this connection it is of interest to consider the number of medical officers of the medical corps, usually present in the United States and abroad. In the hearing before the Committee of Military Affairs, House of Representatives, January 25, 26 and 27, 1915, it was brought out that there are 292 medical officers on duty in the United States and 139 on duty in our oversea possessions. So on the outbreak of war we could count on as a rule only 292 well instructed medical officers, and twelve others undergoing instruction at the Army Medical School at present.

Evacuation Hospitals. In allowing two evacuation hospitals to each division 22 would be required. The material of 24 is at present collected in medical supply depots in the United States and possessions. This would equip the 11 divisions of regulars and sufficient for one division of the militia contingent.

Base Hospitals. Allowing one base hospital for a division, 11 would be required for the regulars. There are on hand three; two in the United States and one in the Philippines. These hospitals have a capacity of 500 beds, and allowing 10 per cent. of sick and wounded 40 would be required for 200,000 men. It would seem that nearly four per division is required. While the material for only three is on hand, it is believed it could be purchased in open market without much difficulty on a declaration of war.

Hospital Railroad Trains. Approximately 500 litter fittings for converting freight cars into suitable transports for wounded are on hand. These will equip two trains of about ten cars each; allowing one hospital train for each division eleven would be required.

THE MILITIA.

Medical Corps.

There are approximately 129,000 militia in the United States. When expanded to war strength with the same organization as the 200,000 men of the regular army into 8 infantry divisions and 3 cavalry divisions, and assuming 10 per cent. of sick and wounded, 2,035 medical officers would be required. There are 852 medical officers of the militia in the United States. For the zone of the advance about 955 would be required. There is no organized reserve for the medical department of the militia and the deficiencies would have to be made up from uninstructed physicians. Out of a total of 852 over one-fifth, 156 were not inspected in 1915, making it impossible to state as to their preparedness for field service. In order to increase the efficiency of the medical officers of the medical corps of the militia, 6 inspector-instructors from the medical corps of the Army have been detailed. Owing to the small number of medical officers available, each one of the six inspector-instructors has charge of the militia of several states. Additional instruction is given in the summer camps and by a correspondence course previously referred to. The degree of efficiency differs widely in the different states. In many states but a short period of preparation would be needed to make the sanitary troops ready for field service. In others, however, much time and labor would be required.

Hospital Corps.

Allowing 5 per cent. Hospital Corps men, the 200,000 would require 10,000. There are in service 3,997. There would be required for the zone of the advance alone 7,952. These sanitary organizations would have to be recruited up to proper strength at the same time with the line organizations, and would necessarily be in large part uninstructed.

Field Units.

Field Hospitals. The number of field hospital companies required would be 35, at war strength; there are organized with the militia 28 at peace strength. The material organized into units, and in medical supply depots, is sufficient

to supply the seven additional required and leave 18 in reserve, exclusive of personnel, harness, wagons and mules.

Ambulance Companies. The number of ambulance companies required will be 41. There are in service with the militia 18, and 9 units of material could be supplied from supply depots, making 27. There will be nothing on hand for the 14 short or for the 11 Evacuation Ambulance Companies of the 11 divisions. Only 18 out of 41 would have ambulances, mules, harness or personnel.

CAMP INFIRMARIES.

There are ample regimental infirmaries in service and in depots to supply both the militia and regulars. These regimental infirmaries are brought to the camp of mobilization by each regiment. With the exception of four for each division to be used as camp infirmaries, they are turned over to the Medical Supply Officer of the molibilization camp and stored there. There would be no transportation for the four camp infirmaries for each militia division, as they do not bring transportation with each regiment for the use of the medical department, as the regular regiments do on leaving their posts, and as is prescribed by the Tables of Organization, because they do not have it to bring. This transportation would have to be purchased. The shortage for the regular and militia contingent when mobolized would be as follows, for the 400,000 men:

Medical Officers.	Hospital Corps.	Wagons.	Ambulances.	Draft Mules.	Pack.	Riding Horses.
1,245	10,615	426	532	3,738	224	1,984

While the line of the army is being recruited up to war strength, this personnel and equipment will have to be obtained. It would require a considerable period of time. As regards the transportation no allowance is made for wagons, etc., necessary for the use of Evacuation or Base Hospitals. The Tables of Organization does not allow for any. I am of the opinion that at least two wagons would be required for each evacuation hospital, and three for a base hospital to do the necessary hauling of rations and other supplies. In the table given each Evacuation Ambulance Company is allowed 12 ambulances and 48 mules only.

The Dodge Commission, investigating the conduct of the Spanish-American War, came to the conclusion that the deficiencies of the Medical Department were attributable to the lack of sufficient appropriations by Congress. It recommended that supplies be kept on hand for 16 divisions for one year. This has not been practicable for lack of funds. Medical supplies are on hand for about 9 divisions of infantry and 3 of cavalry, such as litters, instrument cases, etc., for about six months, as the wear and tear is very great. If we were cut off from the sea, the only articles that are essential that could not be produced in our own country are quinine, opium and coca leaves. Many articles, such as rubber goods, cannot be kept in stock because they deteriorate, and also some medicines. These articles subject to deterioration could, however, be purchased in open market in an emergency.

REPORT CARDS.

Individual records of sickness and injury in order that pension claims can be settled with justice to the individual and the government, are kept on a card, a printed form which is filled out with the soldier's surname, Christian name, rank, company and regiment or corps, age, race, nationality, length of service, date of admission, source of admission, cause of admission. Whether admitted to hospital or quarters. Whether in line of duty or not. Complications, disposition, name of the hospital, and initialed by the medical officer making the report. On the back of the card is the number of days lost from sickness in hospital and quarters for each month of the year, and the total. These cards collectively constitute the register of patients and each case is given a register number. They are made out for each case admitted to sick report by the surgeon of each unit except the station for the slightly wounded. They are prepared in duplicate. One set for the retained records of the surgeon making the report and called Record Cards. The original set forwarded to the Surgeon General at the end of each month are called Report Cards. When a patient is transferred to a field hospital or other hospital he is accompanied by the same kind of a card, which is then called a Transfer Card. The report cards are accompanied by a Report Sheet giving the period of the report, and the mean number of officers, and enlisted men, white and colored separately, and Filipinos, Porto Ricans and Indian Scouts. Also a nominal check list of the names of all cases admitted during the month. The Report Sheet, Form 51, the Nominal

Check List, Form 51-a, and the Report Cards constitute the Report of Sick and Wounded of the army and is the basis on which the Surgeon General's office makes up the annual statistics of the army, and from which individual pension claims are adjudicated with respect to the individual and the government.

THE AMERICAN RED CROSS.

An important adjunct of the medical mechanism for war in the United States is the American Red Cross. It is the official aid society authorized by Congress and by the proclamation of the President of the United States of August 22, 1911. This society really constitutes a reserve for the army and navy in war. It supplies and mans the rest stations along the line of communications which are established to take care of sick and wounded en route to the base and who are unable to continue the journey. The Red Cross has now assumed a more important function under the management of Colonel J. R. Kean, Medical Corps, U. S. Army, as U. S. Army Director General of Military Relief, American Red Cross. It has taken the form of the organization of field units assimilated to the base hospital of our army of 500 beds. Its personnel consists of 26 officers, 50 nurses, 25 nurses' aids, 80 male administrative personnel and 15 civilian employes. All of the medical men enrolled in them are given commissions in the Army Medical Reserve Corps; the nurses are enrolled members of the Red Cross Nursing Service. The male administrative personnel of the hospital is required by the enrollment pledge to enlist in the Hospital Corps when called into service. The twenty-five nurses' aids are women who volunteer to serve without pay and have undergone a prescribed course of instruction. The cost of the material of these Red Cross Base Hospitals is $25,000. The following number of these base hospitals are in course of enrollment: three in New York City, three in Boston, one at Johns Hopkins, Baltimore; one in Cleveland, one in Rochester, N. Y., and one in Grand Rapids, Mich., ten in all. These units will be an important addition in war where our organization is weakest when entering in a war.

CIVIL PHYSICIANS.

The above table shows that after having used all of the medical personnel of the regular army and organized militia there would still be a shortage in the first line of defense of 1,245 medical men, with no instructed reserve for a second line. This deficiency would have to be made up from the general medical profession of the country. If we went to war with any first-class power we would call out at a minimum at least 2,000,000 men, and allowing one per cent. of doctors, 20,000 would be needed. That number of physicians from civil life would be the minimum. How many of the 145,041 doctors in this country would be of suitable age and school is a matter of speculation. Homeopathists and Eclectics would not find the proper preparations for their school in the government supply tables. Doctors over 45 years of age do not stand the hardships of service at the front very well. The only probable idea of the number of young doctors we can form is from the number of graduates of the regular schools of medicine in the last few years, and we know that they are steadily decreasing in number. In 1904 there were 5,190 graduates of the regular schools in the United States. Whereas in 1915 there were only 3,286, which is a decrease of 36.6 per cent. below 1904. It would seem that some organized patriotic movement should be made by the medical profession of this country to place in the hands of the War Department on the outbreak of war the necessary data to enable it promptly to fill the need of doctors. There is no reserve for the medical department of the militia and in fact there will be a shortage in the first line of defense itself of 1,245 doctors. A reserve should be organized for this purpose, and the medical service for all organizations of the second line of defense will necessarily have to come from the general profession. The reserve of the first line should be between 27 and 45 years of age. An organization should be accomplished through State Medical Societies and branches to furnish the names of those willing to serve. They should, in my opinion, be divided into three classes after the reserve of the first line is supplied, viz., from 27 to 45 of those willing to serve with regimental and field units at the front. Those of 45 to 55 willing to serve in Evacuation and Base Hospitals on the line of communications and the general hospitals in the interior, and those from 55 to 65 or over to remain at home to serve the needs of the civil population. These lists should be corrected by the State societies frequently and the special qualifications should be stated, as general surgeons,

Ophthalmologists, Ear and Nose Specialists, etc., so that they could be promptly fitted into the places where they would do the most good. This is only a tentative plan. War is waged now on so huge a scale that it requires all the resources of a nation, and the medical profession is one of those resources. They should be ready and organized to rally to the colors and to the call of a country's need as promptly as the combatant element, for in case of international trouble they are as certain to be needed. This is but the germ of an idea that I hope may grow so strong as to characterize the medical profession of this country not only as a scientific body, but a patriotic body. Service in the medical corps of armies now is fraught with nearly as much danger to life as in the line, owing to the long range of modern ordnance obliging the doctor to enter well into the danger zone of battle if he is to be of use. During the Russo-Japanese war the loss, in proportion to numbers of the medical department of the Japanese, was second only to the infantry, but

"How can a man die better
Than facing fearful odds,
For the ashes of his sires
And the altars of his gods?"

Federal Building.

RECURRENCE OF SYMPTOMS AFTER OPERATION FOR GALLSTONE DISEASE.*

JOHN B. DEAVER, M. D.
PHILADELPHIA, PA.

"It is fit things be stated and considered as they are."

During the period from January 1, 1910, to January 1, 1916, one thousand and thirty-one operations upon the gall bladder or biliary passages were performed at the German Hospital with a total mortality of 7.18 per cent (74 deaths). The conditions for which operation was done were as follows:

TABLE I.

	Recovered.	Died.
Calculus	695	42
Cholecystitis	213	6
Biliary fistula	12	3
Stricture common duct	7	2
Chronic pancreatitis	61	5
Acute pancreatitis	3	3
Pancreatic lymphangitis	2	..
Carcinoma of the pancreas	11	4
Carcinoma of gall bladder	4	1
Empyema of gall bladder	16	6
Cirrhosis of liver	2	1
Adhesions	2	1
Hydrops	1	..
Pericholecystitis	1	..
Drainage of pancreas	1	..
	1,031	74

The type of operation and the mortality of each is shown by the following table:

TABLE 2.

	Operations.	Deaths.
Cholecystectomy	360	36
Cholecistectomy and choledochostomy	114	4
Cholecystostomy	427	13
Cholecystostomy and choledochostomy	28	4
Cholecystostomy, choledochostomy and pancreatostomy	1	1
Cholecysto-duodenostomy	35	4
Choledochostomy	63	13
Choledocho-duodenostomy	2	..
Cholecysto-gastrostomy	1	..
	1,031	74

Mortality, 7.18 per cent.

During the same period and included in the above there were 42 cases that had been operated upon previously for the same disease. Five of these had had two previous operations and one had been operated upon three times without relief. The number of operations performed upon these forty-two cases was fifty. The operative mortality in this group was exactly 8 per cent. or approximately the same as in the whole series. The four fatalities were due, in one case, to uncontrollable hemorrhage, in another to the same cause plus leakage from a cholecystoduodenostomy, in the third from toxemia and exhaustion, and in the fourth, which was the case mentioned as having had four operations, death was due to acute pancreatitis on top of carcinoma of the head of that organ. A considerable number of these recurrent cases had not been operated upon by me in the first instance, but I have no doubt that some of my original cases have reached the hands of others of my colleagues for secondary operations, so that it seems likely that under the conditions of surgery prevailing in this period that about 4 per cent. of all cases come to reoperation for persistence or recurrence of symptoms. However that may be, it will be valuable to examine the causes for surgical failures and recurrence of symptoms. The average interval between the first and second operation was 22 months, the longest period being 9 years. Reoperation was done

within 1 year in.....60 per cent.
within 2 years in.....12 per cent.
from 3 to 4 years in.....18 per cent.
from 4 to 9 years in.....10 per cent.

The conditions found at operation are shown in the following tables:

*Read before the Chicago Medical Society, April 26, 1916.

TABLE 3.

Cases of Recurrence After Primary Cholecystostomy.

Acute destructive infection involving the common duct	1
Recurring infection of gall bladder	3
Recurring infection of gall bladder and pancreas	4
Stricture of cystic duct	2
Stone in cystic duct	1
Stones in gall bladder	10
Stone or stones in common duct	5
Stones in common and hepatic duct	1
Carcinoma of pancreas	1
Failure to open gall bladder which contained stones	1
Adhesions	4

Causes of Recurrence After Cholecystectomy.

Persistent chronic infection involving pancreas	1
Stricture of common duct following operative injury	1
Stone in common duct	1
Stone in hepatic duct	1

Causes of Recurrence After Cholecystectomy and Choledochostomy.

Stricture of pancreatic portion of duct or duodenal orifice	2
Stone in common duct	1
Duodenal fistula (post-operative)	1

Causes of Recurrence After Cholecystostomy and Choledochostomy.

Stone in common duct	1

TABLE 4.

Causes of Recurrence After All Operations Combined.

Stricture of common duct	6
Stone or stones in common duct	8
Stones in common and hepatic duct	1
Stone in hepatic duct	1
Stone in cystic duct	1
Stones in gall bladder	11
Cholecystitis	3
Chronic pancreatitis	5
Adhesions	4
Duodenal fistula	1
Carcinoma of pancreas	1
	42

Twenty-two cases, or slightly more than half, were found to have one or more stones in different locations. In 11 cases, or exactly one-half of the total number, the stone or stones were in the common duct, and in one case each they were found in the hepatic and common duct, in the cystic duct and in the hepatic duct. In the cases showing stones in one or more of the ducts it seems altogether probable that they were overlooked at the original operation, or, possibly in the case of those in the hepatic duct they were beyond the possibility of surgical removal at that time. In 3 cases a single stone was found in the gall bladder. One cannot say whether these single concretions were formed after operation or were overlooked. Those who know the difficulty of emptying the gall bladder completely will readily admit the latter possibility. In the other 8 cases of stones in the gall bladder the number ranged from five to several hundred and in several cases the conclusion was irresistible that they had reformed in that location.

One man had remained well for eight and a half years after cholecystostomy for gallstones. Then for a period of six months he had developed typical symptoms of gallstone disease and at operation he was found to have many stones in the gall bladder and several in the common duct. One case operated upon by myself two years previously by cholecystostomy for gallstones presented himself again for operation and was found to have a gall bladder absolutely packed with hundreds of stones, a condition that could not have been overlooked at the original operation. Still a third case had had gallstones removed in a Brooklyn hospital nine months previously and at operation showed a strawberry gall bladder containing many stones. It seems probable that this condition, which is now well recognized as an indication for cholecystectomy, had been overlooked and that the stones had reformed in consequence. Another case should be mentioned to illustrate the difficulty of detecting small stones in gall bladders that do not present external evidence of disease. This patient had been explored in another hospital for symptoms of gallstones, but the operator evidently decided that the gall bladder was healthy and contained no calculi. When it was opened, however, numerous minute stones were found.

From these cases it would appear that gallstones are the most common cause of the recurrence or persistence of symptoms after operation. They make their presence known within a year and often within a few days or weeks. They are usually stones that have been overlooked or out of reach, but if the gall bladder has been left, the possibility of reformation of stones cannot be disregarded.

In eight cases the cause of later trouble was either failure to dislodge the infection or a reinfection of the biliary passages and pancreas. Chronic and acute cholecystitis without stones was found in three instances and chronic pancreatitis in five.

I cannot but feel that the percentage of failures from these sources would have been much higher had I not laid great stress upon free and long continued drainage of either the gall bladder or common duct or both in all operations upon the biliary passages. The use of maximum sized tubes which are allowed to remain until they practically fall out has been my rule and nothing has occurred to alter my opinion in this respect. Operative biliary fistulas always close if there is no obstruction to the normal passages and the physiological rest afforded by free drainage is of the utmost value in allowing the tissues to clear away the lurking infection. While we may deplore even these few recurrences of the in-

fective process, it seems to me that we should rather congratulate ourselves upon the infrequency with which this occurs. When we consider the fact that a biliary tract once diseased would naturally constitute a *locus minoris resistentiae* and furthermore observing the great difficulty and unreliability of any known medical measures to sterilize the infected tract the superior results of surgical treatment are apparent.

Stricture of the common duct was met with in six instances. In two they could fairly be attributed to the fact of surgical treatment since in one the duct was accidentally injured during cholecystectomy, and in another a severe local infection caused sloughing of a portion of the duct itself. In the other four cases the condition was secondary to extensive and long continued disease of the duct, such as suppurative and ulcerative cholangitis and might have been obviated by earlier surgery. In two of these cases the site of the stricture was in the pancreatic portion of the duct and at the ampulla of Vater, situations not in any way affected by the procedures of the previous operation. In one of these cases I side-tracked the obstruction by anastomosing the duct above it with the adjacent duodenum. In another case I made an end-to-end anastomosis of the ends of the duct above and below the obstruction, and in the remainder after dilatation, a T-tube was placed in the duct and allowed to remain for several months. I have never tried any of the fancy methods for reconstructing the duct recommended by experimentalists. Dr. Riesman and I have a patient on whom I operated for the third time more than three years ago for a chronic cholangitis. She has been wearing the T-tube ever since, refusing to allow it to be removed, as she is perfectly comfortable with it and fears another recurrence if it should be removed. This illustrates how well the tissues will tolerate the tube and proves that in the event of the necessity of reconstruction of the duct ample time may be given for the formation of a firm fibrous tube and possibly even for its epithelialization.

In one case a small duodenal fistula developed from pressure of a drainage tube. After some months this was closed by operation with satisfactory recovery.

In four cases the only lesion that could be found to account for the symptoms was the presence of adhesions. It must be said, however, that adhesions, often extensive and dense, were present in every one of the cases. They are part and parcel of the healing process. Naturally they were more marked when infection or operative trauma was greatest. It is a difficult matter to say just what part adhesions play in the production of symptoms. Where they produce definite kinks or obstructions of the stomach, duodenum or intestines it is not so difficult to correlate the mechanical conditions with clinical effects. Where no such evident mechanical factor is present it is hazardous to attribute symptoms to adhesions. Thus, in the case of one individual who had enjoyed complete immunity from symptoms for eight and a half years after cholecystostomy, only to receive a reinfection of the gall bladder with reformation of stones, operation six months later showed numerous and dense old adhesions which were evidently the product of the previous operation yet without creating any disturbance of sensation or function. I have observed so many similar instances that as a rule I do not disturb adhesions when operating unless they are in the way. As a rule they cause no trouble and if disturbed they are sure to reform and probably more dense than before.

As to the rôle of the type of operation in predisposing to recurrences it is evident that more recurrences took place after simple drainage of the gall bladder than when it was removed. Thus, in half of the stone cases recurrence was due to calculi left or reformed in the gall bladder. In one case stones were impacted in the cystic duct and would have been removed by cholecystectomy. When stones are overlooked in the common or hepatic duct it is, of course, clear that the treatment of the gall bladder is of no moment so far as subsequent obstructive symptoms are concerned. In the eight cases noted as simple infective recurrences, namely, cholecystitis and chronic pancreatitis, the gall bladder had been removed in only one. Naturally cholecystitis cannot occur in the absence of the gall bladder, but in the five cases of pancreatitis only one had had a cholecystectomy. This is in line with our newer ideas of the part played by the gall bladder as a chronic focus of infection from which the pancreas is often involved, and while the number of cases is small they serve to support the idea that unless it is needed for side-tracking purposes, it is better to remove the diseased gall bladder when complicated by pancreatitis.

The superiority of cholecystectomy in respect to the freedom from recurrences is rather more than counterbalanced by the higher mortality of the operation. It is worthy of note, however, that my figures do not give a correct idea of the relative dangers, as it was my practice up until very recently to drain all the simple cases and remove the more extensively diseased gall bladders. This would naturally give a higher mortality in the latter group from the greater severity of the condition and duration of the disease. In the same type of cases under good conditions the mortality of cholecystostomy and cholecystectomy do not vary greatly, though removal is still the more dangerous operation.

The causes of recurrent symptoms following operation for gallstone disease are the following:

Late operation and extensive pathology.

Type of operation not adapted to the lesion.

Overlooking stones in the gall bladder or ducts.

Reformation of stones.

Persistence or recurrence of infection of gall bladder, ducts or pancreas.

Insufficient drainage.

Adhesions, especially adherent duodenum, pylorus or stomach.

Internal biliary fistula.

External biliary fistula.

Contraction of papilla of Vater.

Stricture of the common duct.

Stricture of the hepatic duct.

Stricture of the cystic duct.

Chronic pancreatitis, pancreatic lymphangitis and intestitial pancreatitis.

The type of operation done must necessarily influence the result; for example, draining the gall bladder when it should be removed or vice versa; draining the gall bladder externally when it should be drained into the duodenum; failure to drain when there is present a cholangitis, a pancreatic lymphagitis or interstitial pancreatitis; omitting properly to explore the hepatic and the common duct; omitting definitely to determine the patulousness of the cystic duct when draining the gall bladder; failure to recognize a stricture or a growth of the cystic, the hepatic or the common ducts; failure to detect a stricture and to dilate to the normal, the orifice of the papilla.

Adhesions are the result of neglected, long-standing pathology. These are directly due to frequent attacks of peritonitis, not recognized as such, but such, nevertheless, sometimes labeled one or other of the fifty-seven varieties, bilious attacks, stomach cramps, catarrhal jaundice with epigastric distress, and so on. These attacks subside, but the products of the peritoneal inflammation go on to organization, resulting in the adhesions, sometimes disastrous to the proper function of the viscera they hold in their grasp. The subsidence of and recovery of the patient from the attack is cause for congratulations both to the patient and the physician until there is another and still another attack with medical treatment administered during the intervals. Finally, in desperation, the patient is brought to the operating table, when the aseptic scalpel too often reveals a woeful state of affairs in the shape of a stony obstruction of the common duct. This may, perhaps, not give rise to jaundice nor even to hepatic colic in the true sense of the word, because nature has provided for the passage of the greater portion of the bile by side-tracking it in the shape of a cholecysto-gastrostomy or duodenostomy. I have seen this condition in more than one patient dismissed from Carlsbad as cured.

In the presence of dense adhesions, as I have stated, it has been and is my practice to disturb the adhesions as little as possible. Thus, for example, in the case of a stone in the common duct, if it is possible I locate the stone, incise the duct and extract the stone without dividing or severing the adhesions. Unfortunately this cannot always be done, as very often the anatomical landmarks are entirely obscured and it becomes necessary to make a careful dissection in order safely to expose the lesion. In my experience recurrence of adhesions plays a role in the recurrence of the symptoms, for which the original operation was done; furthermore, I know of nothing to prevent the recurrence of adhesions except by covering the raw surfaces by flaps of peritoneum. In other words, if the field of operation is not left with endothelial surface in contact with endothelial surface adhesions will again form. I have tried all of the methods that have been recommended with negative results, except by the sliding of peritoneal flaps, which I regret to say is not always possible.

The most common error in operating for gallstone disease is failure to remove all of the stones. I have many times operated, removing a stone or stones that had evidently been overlooked at a

previous operation. This, however, is not always the fault of the surgeon who performed the original operation. I have many times met with a gall bladder full of stones, with the common, the hepatic and the two primary hepatic ducts also filled with stones. It is not always possible to clear the two primary branches of the hepatic duct. Again, in the attempt to remove a stone or stones from the hepatic duct, one or more may be displaced upward and beyond the reach of the surgeon. This can result in subsequent obstruction of the common duct and call for a second operation later. It is not possible in all of these cases to clear the smaller ducts of the liver and thus prevent the descent of the stones into the common duct, where they may subsequently cause obstruction. I could cite several interesting cases of this type upon which I have operated two or three times before they remained permanently well. The establishing of complete drainage is essential for a permanent cure. We must not fight shy of opening the common or the hepatic duct if necessary, for the purpose of securing drainage.

Internal biliary fistula in the shape of a cholecysto-gastrostomy, cholecysto-duodenostomy, and cholecysto-colostomy can be corrected only by severing the respective viscera and repairing the openings. In the majority of instances of this kind it may probably be best to excise the gall-bladder on account of disease of the same and to close the opening in the stomach, the duodenum or the colon, as the case may be. If the fistula be due to stone obstructing the common, or the hepatic duct it must be dealt with as seems best. Where the obstruction is caused merely by stone the operation is usually simple, but if it is due to a stricture or to a neoplasm, a careful plastic operation will be required. In dealing with either of the latter conditions resection and anastomosis of the ends of the ducts or of the proximal end to the duodenum should be done, or, if this is impossible, a rubber tube may be introduced into either end of the duct when, if it has not been possible to unite the divided ends of the duct at one or more points, the gap can be filled in with the great omentum. I have been successful in bringing about a satisfactory result in two patients by using this procedure.

A stricture of the common duct with a normal gall bladder and with a patulous cystic duct, may be corrected by a cholecysto-duodenostomy.

The treatment of external fistula, if the fistula is simply a gall-bladder one, due, as is usually the case to a stone obstructing the cystic duct, excision of the gall-bladder is the best practice, and if due to stricture, excision is the only proper operation.

Pancreatic lymphangitis and chronic interstitial pancreatitis are amenable to treatment by drainage only. It may be established by making an external gall-bladder fistula or by a cholecysto-duodenostomy or by draining the common duct.

Contraction of the papilla of Vater, with consequent obstruction of the common duct calls for dilatation of the papilla carried out gradually through an incision into the duct. The most common cause of this condition is an extension of inflammation of the common duct to the papilla resulting in inflammatory swelling or stricture. When this is followed by a recurrence of the contraction it will be necessary to reoperate by making a short circuit between the gall-bladder and the duodenum. The simplest operation to do is a cholecysto-gastrostomy, but I do not think as well of this method as I do of cholecysto-duodenostomy. I admit the connection between the gall-bladder and the stomach is the simpler to make. I have seen the common duct dilated to the size of a small first and under these conditions a choledocho-duodenostomy is the safer operation.

An adherent duodenum is capable of occasioning symptoms which may be interpreted as ulcer. An attempt should be made to separate an adherent duodenum or stomach, but if this cannot be safely done, a gastroenterostomy will best be done.

Acute and chronic cholangitis are amenable to treatment only by bile drainage, best carried out by introducing a rubber T-tube into the common duct. Acute cholangitis is seldom seen except as a complication of infection of the gall-bladder or the common duct and more often due to the presence of stone obstruction. Acute cholangitis, due solely to inflammatory obstruction, is comparatively rare; it does not differ from lithogenous obstructive cholangitis and likewise calls for the establishment of free drainage.

Drainage can be made through the gall-bladder, if the cystic duct be patulous, and the condition of the gall-bladder warrants drainage. Drainage through the common duct is much more efficient and more reliable, and better suited therefore

to bring about prompt results than is drainage of the gall-bladder. I have seen too many cases of the type I am now speaking of not to be firmly convinced that this is the only reliable means of preventing suppurative cholangitis with multiple foci of infection involving the entire liver, a combination which spells death. These acute cases are desperate ones, showing rapid pulse, high temperature, severe chills, etc., and drainage if it is expected to do any good must be instituted promptly. A case of this character occurring in my experience several years ago that made a great impression upon my mind was one of streptococcic infection of the gall-bladder in a man of middle age, sick 24 hours, presenting the characteristic symptoms plus a mild jaundice. Complete recovery followed drainage. A culture of the small amount of purulent material in the gall-bladder, made by the late Dr. A. O. J. Kelly, showed pure streptococcus. Further comment as to what would have happened to this man without operation is unnecessary.

This operation is particularly indicated in chronic cholangitis of long or short standing, with more or less jaundice. I will illustrate my remarks by stating a case occurring in the practice of my friend and colleague, Dr. David Riesman:

The patient referred to earlier in this paper, was a a woman in middle-life, with chronic gallstone disease, with a history of hepatic colic, jaundice, etc. At operation—a cholecystectomy at the hands of the writer—calculous cholecystitis was found with no evidence of common duct obstruction or pancreatic involvement. The patient recovered and remained well for six months, when she again became sick, complaining of general malaise, indisposition, loss of appetite, epigastric distress after eating, gradual loss of flesh, slight jaundice, etc.

Second operation: Incision of the common duct; small single rubber tube, the end of which was engaged in the hepatic duct. Prompt recovery from operation. The liver at the time of operation was enlarged, not markedly so, however, but tougher than normal to the touch. The patient remained well for about nine months, when recurrence of the same set of symptoms as complained of before the last operation appeared in an aggravated form, severe rigors, high temperature, profuse sweats, mild jaundice, no pain. This continued until Dr. Riesman again asked me to see the patient with him, at which time he agreed with me that another operation was imperative. The common duct was again opened and a rubber T-tube introduced. The liver at this time was enlarged, presenting a streaked appearance, its consistency being tougher to the touch than at the second operation. No obstruction of the common duct or disease of the pancreas was found. A singular remark that the patient made to me when she came to the hospital for the third operation was that the sweating at night was so profuse that she would wear six nightgowns in one night. Great improvement followed the operation, there were no further chills, sweats, practically no temperature. It is now over three years since the last operation and the patient remains well and continues to wear the tube.

What more striking benefit of drainage could I cite? What could give more force to the position I take in favor of surgical versus medical treatment in this type of case?

This is not only true of gallstone disease, but of duodenal ulcer as well and of other conditions with which you are familiar. Would that I could impress my hearers with the importance of the physician studying with the surgeon that which is exposed when opening the abdomen of their patients to the light of day, the only way by which the greatest good can be accomplished to the greatest number.

We are forced to admit that the study of dead pathology is of far less moment in acquiring a correct and working knowledge than is the study of the pathology in the living. We are again forced to admit that the information gained in recent years that has shed so much light upon diseases of the abdomen hitherto unknown has been due to the knowledge acquired in the studies of the opened living abdomen. Prior to the latter period, with few exceptions, we only knew the terminal stages of intra-abdominal disease. Since the advent of the present means of studying these diseases, we have familiarized ourselves with all of the stages of the disease from their initial to the terminal stage. This can truly be said to have been a kaleidoscopic period that has resulted in so great good to suffering mankind.

Mycarditis, kidney degeneration, degeneration of the blood vessels, diabetes, hematogenous infection, to say nothing of many other conditions, are the consequence of neglected toxemia the result of gallstone disease. The two most common sources of infection are the appendix and gall bladder, the pathology of the appendix and gall bladder having much in common.

I want to take advantage of this opportunity, when addressing a body of distinguished Chicago doctors, to pay my respects and at the same

time to credit your colleague and fellow townsman, Dr. Babcock, for having done so much in the way of pioneer work upon myocardial changes the result of gallstone disease. I have come to fear this and kidney degeneration as the two most important factors in the prognosis of these cases after operation.

Diseases of the biliary passages are surgical and not medical conditions; until this is instilled into the minds of our medical colleagues, recurrence of symptoms following operations will continue to be as important a factor in the future life of patients operated on as it is at the present time.

The root of the chief evils that befall the biliary passages is primarily infection and secondarily obstruction. If the biliary passages never became infected the latter would never occur, except more rarely from congenital malformations or neoplasms. The order of sequence, therefore, is infection, inflammation, inflammatory swelling, obstruction and retention of bile, and often precipitation of its contents forming calculi.

In trying to account for the recurrence of symptoms following operation for gallstone disease it is evident to the writer that the most common preventable cause is late operation—operation done when the disease has already brought about certain changes in the tissues primarily attacked and later in distant tissues, with changes and deformities that the surgeon cannot always correct so as to bring about a return to normal conditions. I am sure this is not thoroughly appreciated except by those whose experience with this class of work is very large.

Why are these operations so often done too late? The answer is the patient's confidence in medicine; in the cures supposed to be brought about at the various springs such as Carlsbad and others; the fear of operation; and the advice of the physician who believes that many of the affections we are discussing are amenable to medical means. The arguments for and against medical versus surgical treatment must be based on pathological and anatomical facts as learned from making autopsies on the living and on the dead.

Frequent excursions into the upper right abdominal quadrant in the presence of pathological conditions naturally make the observer more or less familiar with the underlying cause of the pathology and in this wise enables him to correlate the symptoms and clinical findings in arriving at a correct conclusion or a correct diagnosis. This is illustrated by a hackneyed expression that to become a good diagnostician of gallstone disease it is as essential to know its pathological anatomy as it is to go into the water to learn to swim. Hence the expression that the surgeon walks by sight and the physician by faith. The internist makes his deductions by working on the outside while the surgeon works on the inside. Knowing the difficulties of the surgeon in reaching a correct conclusion, how insurmountable must be the difficulties confronting those whose deductions must be drawn from external signs alone. The surgeon who is daily making excursions into the abdominal cavity by his handiwork, renders its walls transparent, as it were, and from a rich experience he can truly say he walks not only by sight, but also by the kind of faith that the old darkey understood when he said, "seein' is believin'."

In spite of all that we have learned of late years concerning bacteria, infection and the various immune bodies by which the body defends itself, no one can deny that the best means for combatting infection still are to be found in the old surgical principles of removal or drainage. Removal can often be accomplished here by cholecystectomy, while drainage suffices to relieve the cholangitis.

Neither vaccination nor serum treatment is applicable to biliary infection; in fact there are no reliable medical measures that will remedy it. The much heralded spring treatment, mud-baths, and various other forms of baths prescribed with the idea of causing metabolic changes for the betterment of the condition, can only be designated as temporizing measures.

This so-called medical treatment, including changes of scene, of climate, bath treatment, diet, cholagogues and mineral aperient waters may perhaps bring about a reduction of the inflammation and thus make the soil less favorable for the multiplication and the virulence of the bacteria and by reducing the inflammation reduce the inflammatory swelling and thus lessen the degree of obstruction that would otherwise occur. This is the only possible good they can accomplish and explains the common occurrence of gallstones since we know that their formation is due to a mild infection resulting in prolonged irritation. If the gall bladder mucosa is fertilized in

the above manner there will be a good crop of gallstones; in other words, a good harvest, for as the greatest of all books tells us, that "as ye sow so shall ye reap." It must be remembered that all infections of the gall bladder is an interstitial infection, thus offering the lymphatics the opportunity to carry the infectious products to the pancreas and its lymphatics. Are not microorganisms, if deadly, more to be feared than war? We can prevent the latter by being in every sense prepared, but we cannot prevent the entrance of bacteria into the biliary and other passages of the body. I think I have said enough to convince every right-thinking professional man and woman of the soundness of the surgical side of this question. The conservative treatment, therefore, in the average case is the means of laying a foundation for intractable disease of the liver, the pancreatic lymphatics and the pancreas. This sort of foundation may be as disastrous in its consequences as that of the siege gun, which demonstrated its power in demolishing the Belgian forts. Therefore, those who advocate and practice conservative treatment of gallstone disease must be classed as pacificists and not as defenders of the flag and destroyers of the enemy.

A STUDY OF THE PHYSIO-MECHANICAL FUNCTION OF THE FAUCIAL TONSIL.*

NOTE: In this monograph the term "tonsil" will be employed to designate lymphatic tissue and capsule together as a single organ.

ELMER L. KENYON, M. D.
Assistant Professor in Laryngology and Otology and Chief of Clinic in Defects of Speech, Rush Medical College, Chicago.

AND

W. T. KRADWELL, M. D.,
CHICAGO.

The study described in this monograph was undertaken for the purpose of throwing light on certain observations and certain quandaries which had arisen in the course of the practice of the authors. They had come gradually to realize that the appearance of tonsillectomized throats as observed from time to time, had often indicated anything but ideal anatomical results, and in certain instances had pointed to unmistakable impairment of the depressor palatal muscles. A few cases had been met with in which the speaking voice had, following tonsillectomy, been seriously and permanently impaired. A few published reports had mentioned impairment of the singing voice as well. The articles of Dr. G. Hudson Makuen and of Dr. Thos. R. French had made an impression. And perhaps more than all else a feeling that the exclusively radical attitude of the profession with reference to operation on the tonsils of children, in view of the fact that the dangers from such operation to the possible later development of the voice for artistic purposes remained as yet unsettled, was at least open to serious question. It seemed to them that the parents of children and the children themselves both possessed an inherent right to expect from the medical profession who cared for the children, in any procedure carried out for the child's health, certainly full consideration of a function which might later turn out to be of inestimable value to the child, and of great importance to society as a whole.

Earlier in the history of the operation of tonsillectomy one of the authors of this article had expressed himself as believing that the preservation of the function of the depressor palatal muscles, and so of the capabilities of voice development following tonsillectomy, was dependdent upon carefulness and delicacy of technic in the performance of the operation. But in spite of the recent great advances made in respect to technic the deformities to the throat following tonsillectomy are giving no certain indication of diminishing. While undoubtedly they may be aggravated by crudeness of technic, or by lack of operative skill, yet these deformities evidently are preventable neither by manner of operation nor by delicacy of technic. Dr. Makuen has forcibly pointed out cases of deformity of serious importance occurring in the hands of the most skillful operators.** The authors of this article can emphasize these observations from cases which they also have studied. In individual instances one may, by studying the end results of operations which he knows to have been done with great care and with great delicacy as to technic, witness a most surprising resulting picture of throat deformity.

In the systematic examination of tonsillectomized throats one has it forced upon him that

*Read before the Chicago Laryngological and Otological Society, March 21, 1916.

**"Relation of the Tonsil Operation to the Soft Palate and Voice," G. Hudson Makuen, M. D., Transactions of the American Laryngological Association, 1911.

in most instances something has resulted to the throat besides the mere removal of a tonsillar mass. Not in all but in a very large proportion there is presented quite an altered anatomical picture. The relative regularity of this picture of deformity is of itself alone a most striking fact and sufficient of itself to indicate the probable existence of a definite function of the tonsil with reference to the lower palatal muscles. If such a definite function exists, one would expect the deformities which resulted from total extirpation of the tonsil to present a certain tendency to uniformity in the manner of impairment of the action of the palatoglossue and palatopharyngeus muscles, and this uniformity to be directly traceable to the deprival of these muscles of a definite accomplishment with reference to their action perfomed previous to operation by the removed tonsil.

The authors are well aware of the incompleteness of the following study. They especially regret that up to this time they have not been able to obtain a cadaver upon which the anatomical results of tonsillectomy could be studied. But in spite of incompleteness they feel warranted in presenting their findings at this time, if for no other reason than that others may be encouraged to take up the subject for further study.

The manner of presentation of the matter in hand will be, to discuss, first, the relationship of the tonsil to each of the depressor palatal muscles as shown by anatomical study; second, to point out the presumptive effect of depriving either muscle of the aid of the tonsil, and, third, to tabulate the corresponding facts as observed on tonsillectomized throats.

In the throats studied anatomically, we find only minor variations in the relation of the tonsil to the pillar muscles. Whether important variations may at times occur would require dissection of many throats. We have dissected five tonsils. From the standpoint of the investigation in question, the extirpated tonsil is deceptive, since such a tonsil, if its capsule and mucous membrane covering remain intact, is by the pulling of these coverings bunched into a ball-like mass. In the throat, however, the border of what may well be called the floor of the tonsil, i. e., that part which lies against the lateral wall, tends to flatness, and may be tucked into narrow places where narrow padding is required. This floor presents definite border limitations, excepting below, where it becomes a part of the fascia bearing that part of Waldeyer's ring of lymphatic tissue which passes downward into the laryngopharynx. Above and anteriorly the curved border of the floor parallels essentially the palatoglossus muscle. Following the border from below upwards, it lies between the palatoglossus and the superior constrictor, but drops below the palatoglossus as the latter approaches the soft palate.

The border curves downward at the palate and then parallels the edge of the palatopharyngeus at a short distance from this edge until the muscle enters the body of the pharyngeal wall. The attachments of the capsule to the palatopharyngeus are relatively short, and as one passes downwards into the laryngopharynx they become so short that separation is often impossible without bringing away muscle fibre. The floor of the tonsil spreads itself out over the superior constrictor from which it is separated by a loose areolar tissue. The relation of the tonsil to this tissue is one of contiguity rather than of continuity; and yet, in one tonsil of the five examined, a thin, broad plate of connective tissue passes downwards along the inner surface of the superior constrictor and, overlapping the outer surface of the capsule of the tonsil, merges into its structure. In that one case the impression is directly given that the tonsillar capsule constitutes an elaboration of the intrapharyngeal aponeurosis, as is believed by Descamps, Patterson, Makuen and others. The impression is fully confirmed as one follows the capsule into the laryngopharynx, where its direct continuation unquestionably does become the intrapharyngeal aponeurosis. Removal of the capsule exposes the bared surfaces of palatoglossus and palatopharyngeus muscles, and often also of the superior constrictor, exactly as muscles are exposed more posteriorly and lower down by removal of the aponeurosis. Moreover, the elaboration of the tonsil into a structure having for its purpose the direction and protection of muscle structures, as shall be seen later, is characteristic of intermuscular connective tissue everywhere in the body. And yet, considering lymphatic tissue and capsule together this elaboration has become so complex and purposeful as to constitute an organ of itself, a combined connective tissue—lymphatic tissue, pad-like organ, for certain definite purposes having to do on its physical side with the complicated muscular movements of this region.

RELATION OF THE TONSIL TO THE PALATOGLOSSUS MUSCLE.[1]

The palatoglossus muscle is in the cases examined small and relatively delicate, although according to Dr. Makuen it becomes large in singers.[2] It passes in a slightly outwardly course from the side of the soft palate, downwards and forwards to its insertion at the side of the posterior part of the mouth portion of the tongue. Its position at the side of the throat is chiefly determined by its close attachment throughout its course to the under surface of a bridge of mucous membrane constituting the covering of the anterior pillar. The bridge-like character of this layer of mucous membrane is due to its passage over from the lateral wall of the throat onto the surface of the tonsil, where it either merges indistinguishably into the mucous membrane covering the surface of the tonsil, or else ends in a fairly well defined border on the surface of that mucous membrane. (Fig. 1). It is to be carefully noted that this bridge of mucous membrane depends on the tonsil for its inner support. (Figs. 2, A and B.) Dissecting up this bridge of mucous membrane one finds the palatoglossus closely attached to its under surface. Between the palatoglossus and the inner surface of the lateral wall is a small irregular unoccupied space, bounded below by the upper anterior border of the capsule of the tonsil, and above by the bridge of (removed) mucous membrane. To the outside is a loose fascia covering the inner surface of the superior constrictor. The antero-superior border of the capsule (with its accompanying lymphatic tissue) presses upwards from below into this bridged space so as to be, to a greater or lesser degree, between the palatoglossus and the superior constrictor muscles. It is attached to the palatoglossus quite closely by short strands of connective tissues, while to the superior constrictor the connecting bands are longer. Thus the palatoglossus muscle is encased in a canal determined by the superior constrictor, the capsule of the tonsil and the mucous membrane bridge. Its direction of action is governed chiefly by the outward attachment of the bridge of mucous membrane, which prevents the muscle to a certain degree from straightening towards the lumen of the throat as it becomes shortened in action. The upper anterior border of the tonsil serves to protect the muscle from direct contact with the superior constrictor, especially during the relatively violent movements of swallowing and retching.

As one approaches the soft palate, since the muscle approaches more closely to the lateral wall of the mouth, this bridge of mucous membrane becomes narrower. Here the capsule of

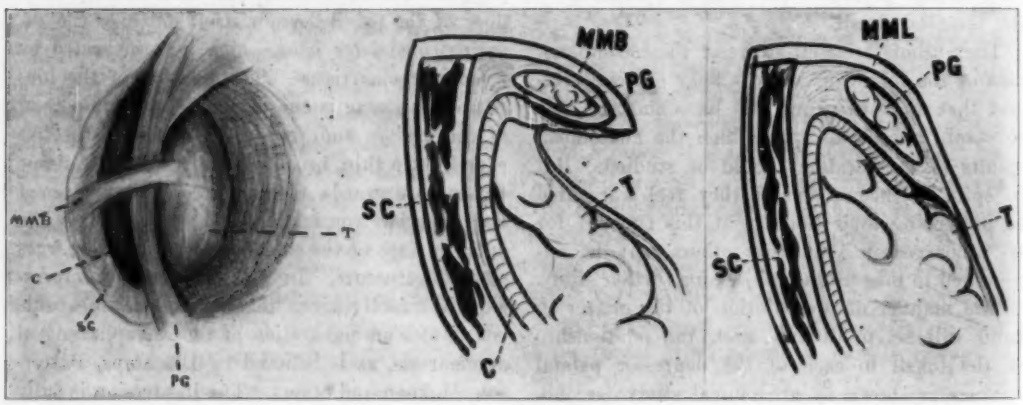

Fig. I Fig. II A Fig. II B

Fig. I. Drawing from dissection, showing relations of palato-glossus muscle. P. G., palato-glossus; T, tonsil; C, antero-superior border of capsule of tonsil; SC, superior constrictor muscle; MMB, a section of the "mucous membrane bridge," which elsewhere in the drawing has been removed.

Figure II, A and B. Showing diagrammatically in cross section the structures and relations which determine the action of the palato-glossus. In A the amount of tonsillar lymphatic tissue is small, in B large; T, tonsil; PG, palato-glossus muscle; MMB, "mucous membrane bridge"; SC, superior constrictor muscle; C, antero-superior border of capsule of tonsil.

1. In this article, for reasons of simplicity, we have not attempted to differentiate the relative part played by the capsule of the tonsil and the lymphatic tissue in the physical purposes accomplished by the tonsil.

2. Therapeutic Gazette, February 15, 1915.

the tonsil does not rise so high as to lie between the palatoglossus and the lateral wall.

The dependence of the palatoglossus on the tonsil may be understood when we consider the situation of the muscle with the tonsil removed. (Figure 3, A and B.) Not only has the inner support to the bridge of mucous membrane been removed, but with it also the border of the tonsil which separated the palatoglossus from the superior constrictor muscle. The layer of mucous membrane supporting the palatoglossus has now, while still bearing the muscle, been transformed into an overhanging ledge. Nature's delicately complex plan for obtaining a perfect action of the muscle has been rudely undermined. The muscle is now in much the same predicament as a ship with a hopelessly injured rudder in a stormy sea and lying in the midst of a jagged rocky shore. The muscle, like the ship, is destined to be seriously shaken at the best, since its perfection of action cannot be hoped for excepting under essentially natural aiding conditions. The degree of the impairment of its function will depend on the strength of the mucous membrane ledge, on the extent of the dropping of the ledge from its former position, on the formation of scar tissue in and upon the muscle, and on the place and extent of adhesions formed between the muscle or ledge and the outer wall.

With the expanding effect of the tonsil removed, the breadth and outward curve of the superior constrictor diminishes (a process which is aided by the contraction of scar tissue); thus the perfection of action of the superior constrictor must be at any rate to some degree impaired. If the ledge of mucous membrane be both narrow and stiff and if it lie in a favorable direction, these conditions may possibly save the muscle from the rocks of adhesion against the outer wall, even though the muscle cannot be saved from the inevitable scar tissue contraction and the retraction resulting from the almost inevitable sagging of the ledge. **(Figure 4, A,** B. C.)

By reason of the lack of supportive capability of the ledge of mucous membrane, or by reason of reparative or inflammatory swelling following the operation of tonsillectomy, or by reason of the traumatisms resulting from the violence of the movements of swallowing and retching, or by reason of these influences combined, contact between this mucous membrane ledge and the outer wall is apt to result in permanent adhesion. This adhesion might be slight or heavy, might extend over a small portion of the linear course of the ledge, either anterior or posterior, or might be complete, in which last case the palatoglossus would be lost in an adherent linear scar throughout its entire course. In case of partial adhesion a part of function of the muscle would be retained. Adhesion posteriorly in the vicinity of the soft palate would be more serious to the function of the palatoglossus than adhesion anteriorly or even near the middle of its course. If adhesion occurred to the palate and should a part of the function of the muscle be retained, nevertheless

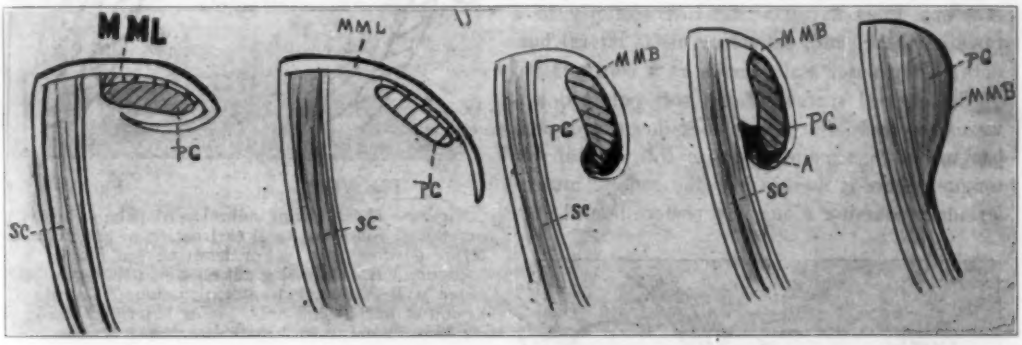

Fig. III A Fig. III B Fig. IV A Fig. IV B Fig. IV C

Figure III, A and B. Showing the predicament of the palato-glossus muscle after the tonsil has been extirpated. These figures correspond respectively to A and B of Figure II. PG, palato-glossus; MML, "mucous membrane ledge"; SC, superior constrictor muscle.

Figure IV, A, B, C. Showing the possible final fates of the palato-glossus following total extirpation of the tonsil. A, retraction of "mucous membrane ledge" with the palato-glossus; B, palato-glossus adherent to outer wall; C, identity of PG and "mucous membrane ledge" completely lost in a mass of adherent scar tissue; PG, palato-glossus; SC, superior constrictor; MMB, "mucous membrane ledge."

the direction of even the partial action remaining would be so extremely altered outwardly as to be relatively ineffective; and, even worse, if resulting scar tissue pulled too hard, the neighboring palatopharyngeus might be pulled with the soft palate over against the outer wall. (Figures 5, 6, 7, 8, 9.)

THE RELATION OF THE TONSIL TO THE PALATOPHARYNGEUS MUSCLE.

The exit of the palatopharyngeus muscle from the soft palate occurs in close vicinity to, indeed is nearly identical with, the place of exit of the palatoglossus; but the two muscles upon emerging from the palate begin at once to diverge the one from the other. The size of the angle of divergence of these muscles is of considerable importance and varies approximately from thirty to fifty degrees. The palatopharyngeus is, relatively to the palatoglossus, a much larger and stronger muscle. It is flattened antero-posteriorly to a fan-like shape, and, extending at its lateral borders to the outer wall, serves as a continuation of the general surface of the soft palate downwards on each side. It passes downwards and backwards to a point opposite the base of the tongue, where it merges into the general muscular mass coursing along the postero-lateral surface of the pharynx. In this study we shall not attempt to follow the muscle in its lower pharyngeal and laryngeal relations.

The tonsil appears to serve the palatopharyngeus in two important respects. In order to appreciate the first of these one should realize the thinness and feebleness of the bared curtain of muscle, as well as the fact that the lateral attachments of the muscle are fixed, while its central attachments in the soft palate are to a certain degree movable. The capsule of the tonsil lies against the lateral wall and curving inwards lies also against the anterior surface of the palatopharyngeus muscle. (Figure 10.) Thus the muscle is, as it were, braced with reference to the lateral wall, and thus is fixed in position; otherwise its thinness of structure would cause it to be liable, if subjected to undue muscular stress or to the pulling of inflammatory scar tissue, to sag towards the outer wall. With the tonsil removed the paltopharyngeus inevitably becomes endangered from any force, whether muscular or contraction of scar tissue, pulling the muscle in either direction. Should this lateral displacement result in close adhesions to the outer wall not only might the muscle be impaired in its action or even be entirely prevented from functionating, but more important still, the palate might be so closely held down as to prevent its upward movement on

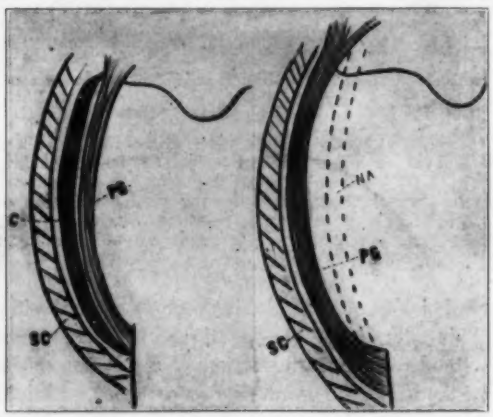

Fig. V Fig. VI

Figure V. Showing normal direction of action of palato-glossus muscle, and normal relation of antero-superior border of the tonsillar capsule to the palato-glossus and superior constrictor muscle. PG, palato-glossus; C, antero-superior border of tonsilar capsule; SC, superior constrictor.

Figure VI. Showing position of palato-glossus muscle following total extirpation of tonsil, due to retraction of "mucous membrane ledge"; adhesions of palato-glossus to outer wall absent. NA, normal direction of action of palato-glossus; PG, palato-glossus; SC, superior constrictor; A, adhesion.

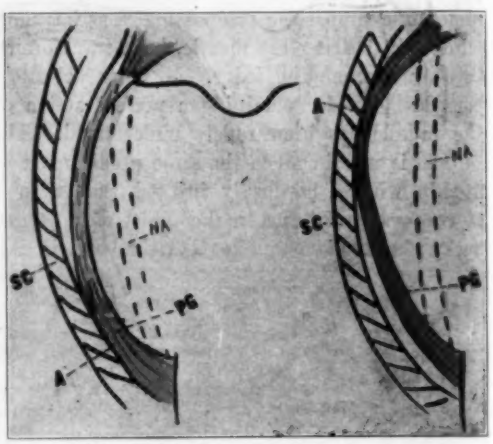

Fig. VII Fig. VIII

Figure VII. Showing adhesion of palato-glossus to outer wall following total extirpation of tonsil, in anterior portion only. (For lettering see Figure VI.)

Figure VIII. Showing adhesion of palato-glossus to outer wall following total extirpation of tonsil; adhesion at palatal end only. (For lettering see Figure VI.)

phonation, in which case a permanent nasalized voice, due to operative rhinolalia aperta, would inevitably result.

The second purpose served by the tonsil to the palatopharyngeus is protective. This protection is most important at two points. The first of these is at the angle formed by the palatoglossus and palatopharyngeus as they emerge from the

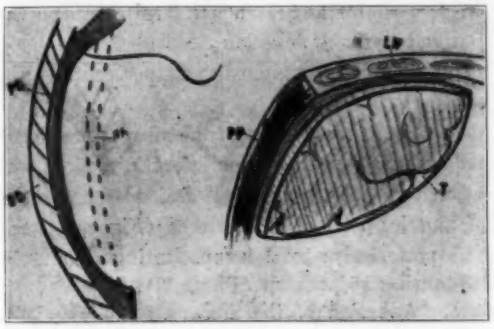

Fig. IX Fig. X

Figure IX. Showing complete adhesion of palatoglossus to outer wall following extirpation of tonsil. (For lettering see Figue VI.)

Figure X. Showing the manner in which the tonsil acts as a supporting brace to the palato-pharyngeus muscle. LW, lateral wall; PP, palato-pharyngeus muscle; T, tonsil.

palate. Here the tonsil with its mucous membrane covering insinuates itself into the depths of this angle, thus preventing adhesion between the two muscles. Tonsillectomy by removing this protection exposes the muscles to the danger mentioned. The second point at which the protection of the muscle is especially important to the palatopharyngeus is the point of passage of the muscle into the pharyngeal wall. Here pharyngeal surface and muscle necessarily are in close association. If the tonsil were absent either traumatic or inflammatory lesions would be much more likely to produce impairing injury to the muscle. In the operation of tonsillectomy to remove the tonsil from the palatopharyngeus to this low point involves danger of adhesion (Figure 11B), from injury to the tissues (for the capsule is here quite closely adherent) and from the inevitable scar tissue even without such injury. The danger is emphasized when one notes that the same phenomenon of adhesion occurs at this point in a mild degree not uncommonly through inflammatory processes, even in non-tonsillectomized throats. In so far as the layer of mucous membrane which curves from behind the posterior pillar around its free border on to the anterior surface of the pillar and so on to the surface of the tonsil, is well preserved, will it help to perform the protective work of the tonsil; and its preservation, as has been remarked by others, is important.

Summarizing now the function of the tonsil with reference to the action of the depressor palatal muscles, as indicated anatomically, we find with reference to the palatoglossus muscle:

The tonsil plays with contiguous structures a necessary part in the creation of a channel for the muscle which determines its location, length, direction of action, and protection against injury through movement of adjacent muscles. If the tonsil be extirpated the muscle is left suspended beneath a thin ledge of mucous membrane, which, being unsupported at its inner border, is liable to the following fates: 1, Slight or moderate contraction and retraction of the ledge in both a lengthwise and a lateral direction; 2, marked retraction in a lateral direction, possibly without adhesion, although adhesion is very likely to occur, in which case there results 3, marked retraction with partial adhesion, either (a) anteriorly,

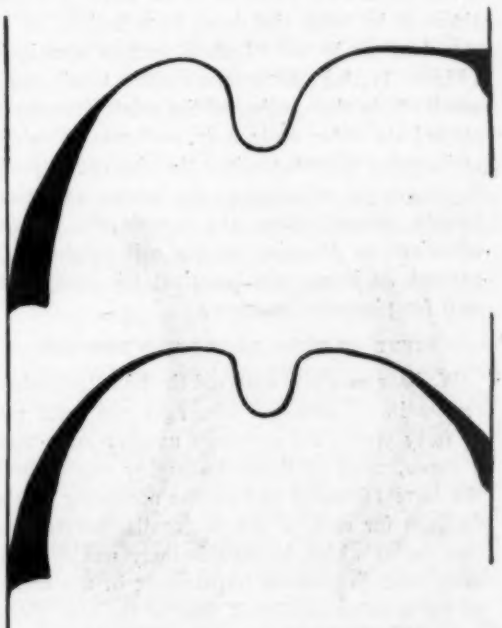

Figure XI. Diagram showing the result of adhesions of the palato-pharyngeus to the outer wall. A, marked; such cases are liable to permanent impairment of the speaking voice. B, moderate; might occur from too low dissection of capsule.

or (b) posteriorly; or 4, adhesion to the lateral wall throughout its linear course.

With reference to the palatopharyngeus the tonsil plays a part less vital to be sure than that played for the palatoglossus, but nevertheless a part of great importance. Especially is this true in view of the larger size of the muscle and its important relation to the larynx. With the palatoglossus extirpation of the tonsil must result, at any rate theoretically, unless in cases of exceptional anatomy, in impairment of the action of the muscle, which usually must be serious in degree, and must often reach total disability. On the other hand (not considering injury due to scar tissue at the surface of the muscle, the seriousness of which we are unable at this time to estimate) serious impairment to the action of the palatopharyngeus, following tonsillectomy, would result only through direct operative injury to its fibres, or through the dragging of the weakened muscle out of place by the pulling of an adherent anterior pillar, or by the traction of scar tissue or by being tied down by adhesions, or by any two, or by all of these factors combined. (Figure 11, A.) Extirpation of the tonsil might result: 1, in the sagging of the palatopharyngeus toward the outer wall; 2, in moderate adhesions at its point of entrance into the pharyngeal wall; 3, in marked adhesion to the lateral wall, thus largely incapacitating the muscle; 4, in the adhesions so dragging on the soft palate as to prevent its being raised against the pharyngeal wall for phonatory purposes.

STUDY OF TONSILLECTOMIZED THROATS.

We have carefully observed the tonsillectomized results in 43 persons. The ages run from two to forty years; the operators number more than a dozen, most of them thoroughly experienced. We have tabulated the results according to the findings for each of the 83 tonsils operated on. One factor which in tonsillectomy would inevitably tend to produce impairment in the action of the muscles concerned, that of the scar tissue formed on the bared surface of muscles, could not be estimated without microscopic study of tonsillectomized throats, and consequently has not been taken into consideration. The tabulation of the end results of tonsillectomy is as follows:

1. Neither the palatoglossus or palatopharyngeus muscle shows more than slight retraction, i. e., both muscles appear essentially normal on both sides of the throat: 3 individuals; 7 per cent.

2. Moderate retraction of the mucous membrane ledge (palatoglossus) in a lateral direction without evident adhesion. Partial impairment of action of muscle: 15 tonsils; 18 per cent.

3. Marked retraction of the mucous membrane ledge (palatoglossus) in a lateral direction but without evident adhesion; considerable impairment of muscle: 17 tonsils; 21 per cent. (Figure 6.)

4. Marked retraction of the mucous membrane ledge (pataltoglossus) in a lateral direction, with adhesions (a) anteriorly; decided impairment of muscle: 5 tonsils; 6 per cent (Figure 7), and (b) posteriorly; total incapacitating of muscle: 13 tonsils; 15 per cent (Figure 8).

5. Adhesion of the mucous membrane ledge (palatoglossus) throughout its entire linear extent; total incapacitating of muscles: 24 tonsils, 29 per cent (Figure 9).

6. Palatopharyngeus appears normal or nearly normal: 63 tonsils; 74 per cent.

7. Slight or moderate pulling of palatopharyngeus towards lateral wall with adhesion, partial impairment of muscle: 11 tonsils, 13 per cent (Figure 11 B).

8. Marked adhesion of the palatopharyngeus to the lateral wall; decided and possibly total incapacitation of the muscle: 6 tonsils, 7 per cent (Figure 11 A.)

It seems conservative to say that following tonsillectomy, the phalatoglossus and palatopharyngeus muscles are never wholly normal in their action. A striking fact concerning the appearance of the pillars in non-tonsillectomized throats is a certain ease and freedom of movement, due to the provision of an abundant amount of tissue allowing for full, easy range of action. This picture in tonsillectomized throats is altered for one of deficiency of tissue and tenseness of action.

The agreement of the findings above of the results of tonsillectomy, with the anatomical indications of the functions of the tonsil with reference to the depressor palatal muscles, need hardly be pointed out. Anatomically the tonsil seems vital to the action of the palatoglossus; and in the tonsillectomized throats the muscle is found to be to the eye practically normal, or at any rate

doubtful, in only 16 per cent; impaired in 45 per cent, and totally incapacitated in 39 per cent. Anatomically the tonsil appears important to the perfection of action, though not vital to the function of the palatopharyngeus, and in the tonsillectomized results it is found normal to the eye in 74 per cent and impaired in 19 per cent.[1]

It has seemed to us best in this article to confine ourselves to the one question of the part played by the tonsil in the action of the depressor palatal muscles. The all-important question of danger of tonsillectomy to the voice, whether the speaking or the singing voice, necessarily is closely involved in the matter under discussion. The subject of the voice in this connection is, however, far from simple, and too important to be casually dealt with. It goes without saying that one who undertakes an operation necessarily so hazardous to the action of the depressor palatal muscles, as indicated by the findings just reported, is playing with fire so far as the voice, and especially the singing voice, is concerned. We feel that it might create a wrong impression, however, if we did not at any rate tabulate the voice cases included in the above list of tonsillectomized throats.[2] Speaking voice apparently unimpaired, 38 individuals, 88 per cent; speaking voice showing rhinolalia aperta (open nasalling), due apparently to marked tension exerted on the soft palate by close adhesions of the palatopharyngeus to the lateral wall, 3 individuals, 7 per cent; speaking voice impaired, but apparently not due to the operation, 2 individuals, 5 per cent; singing voice impaired (as to high pitched notes only), 1 individual, 2.5 per cent. It should be added that in two individuals (5 per cent) a "drawing sensation" in the tonsil region was present; the sensation in one case, a young woman of twenty-two years, with much scar tissue, was highly annoying.

SUMMARY AND CONCLUSIONS.

1. The tonsil serves as an absolutely necessary factor in providing a channel for the action of the palatoglossus muscle.

2. The function of the tonsil with reference to the palatopharyngeus is to afford support and protection of great importance to its normality of action.

3. Tonsillectomy serves to destroy not merely a possible lymphatic function of the tonsil, but also to either disturb or destroy an important physico-mechanical function, one which is capable of being clearly understood.

4. More or less impairment of action of the depressor palatal muscles must occur in practically all cases following tonsillectomy, regardless of the delicacy of operative technic or the particular form of operative procedure adopted; but delicacy of procedure and method of operation are not, of course, to be considered unimportant.

5. To consider the present operation of tonsillectomy as a final settlement of the operative approach to the tonsil is premature and erroneous. The whole tonsil question requires further anatomical, pathological and operative study, in order, if possible, to readjust the operative approach to the organ to the new knowledge which is accumulating.

1. A slight error in percentages results from the fact that in the final tabulation of observations our notes in a few cases were found not to be clear enough to be used.

2. We have left out of our tables entirely one case of badly injured palate with marked impairment of the speaking voice; the case is highly suggestive, however, of the dangers to the voice from so difficult and radical an operation in the hands of the untrained.

MILITARY SURGERY—WHAT IS IT?*

GUSTAVUS M. BLECH,
Major, Medical Corps, Commanding Field Hospital Company No. 2, Illinois N. G.
CHICAGO.

The present interest in war surgery has brought out the astounding fact that there exists a diversity of opinion as regards the character of modern military surgery.

While military medical officers maintain that military surgery is a specialty in a class by itself, most civilian surgeons have expressed themselves as unable to conceive any difference between civil and military surgery, except possibly in so far that military surgery in the field represents a class of emergency surgery on a large scale.

If the military men are right, then the time is ripe for all of us to know the exact scope and character of field surgery, since no one can tell when the civilian of today will be the military surgeon of tomorrow.

While military men are unquestionably in the right in demanding certain knowledge of a military character from one to fit him for a responsible office in a great organization, run along different lines than the organizations to which we have become accustomed in civil life, I shall restrict myself in this contribution to an earnest at-

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tempt to define military surgery in the professional sense only.

Such a definition can be formulated in one or two sentences, but experience having shown that such formulæ convey but vague values, it will be necessary to dwell somewhat at length on some phases of this interesting question.

To begin with, civilians should free themselves from the preconceived notion of the emergency character of field surgery. Except possibly in a sudden and unexpected clash of troops, in a modern war everything is planned beforehand so that there may be many opportunities for "urgent" surgery, but practically never for surgery of the emergency character as commonly understood in civil life.

Next in importance is the appreciation that the entire sanitary service of a military force in the field is there primarily for the purpose of achieving victories. In this the medical corps does not differ from the engineer corps, the signal corps or even the cooks and bakers, for all have their work cut out to enable the combatant troops to maintain fighting efficiency. The notion that medical men are sent to the front in a spirit of humanity to render the best possible skillful aid to the wounded is correct only in an indirect way. To the general who must save the very integrity of his nation by a battle, losses mean only an unavoidable event, and, were it not for the fact that such losses weaken the morale of the fighting troops or would deplete the ranks if the unwounded followed the impulse of rendering assistance to their wounded comrades, the medical department with its wagons and other necessary equipment would be but an impediment hampering the free movement of troops and the ease for ammunition columns to bring up fighting material to the firing line. Practically, then, the medical service is charged to *remove* the wounded and thereby to prevent loss in fighting efficiency. In addition to this, the medical service helps to maintain fighting efficiency by returning to the firing line as quickly as possible as many wounded as possible. From this it can be easily seen that the slightly wounded represent a distinct military asset, because being placed *hors de combat* only temporarily, while those unfortunates likely to be seriously sick for a long time represent a distinct loss with which the men at the front cannot be bothered. It is in the rear, then, that the humane character of the medical service comes into play.

Bearing in mind the principal object of the sanitary service in the field it is not difficult to appreciate that litters (stretchers), ambulances and hot soup and coffee play a more important role than surgical instruments—nevertheless medical officers are not entirely reduced to mere providers for refreshment and transportation of the wounded, since no transport is conceivable without some surgical preparation. But one need but appreciate that such a transport must be made ready in a very limited time period with a large number of wounded clamoring for it at one and the same time to realize that all dreams of laparotomies, thoracotomies, craniectomies, neurorrhaphies, aneurysmorrhaphies and what not, even were they technically possible on the battlefield proper, must vanish for the frontal surgeons as impractical things. Nor would complicated surgery at or near the firing line be humane. When one surgeon has to look after twenty seriously wounded and thirty less seriously wounded in about an hour, it is no mercy to spend a whole hour on one man searching for perforations of the intestine and mesentery and leaving the others to their fate, to say nothing of the question whether such a procedure would not do more harm than good.

Ernst v. Bergmann, one of the greatest surgeons who has grasped the gravity of the problems presented by our struggle with "traumatic epidemics," has formulated for the frontal surgeon what has come to be looked upon by modern military surgeons as a law, that all individualization must be avoided and all work must be pattern like. Pirogoff, Russia's immortal surgical genius, has expressed the same thing in different words: "In war everything is subservient to organization." I would add the remark that all initiative is not forbidden, but whatever initiative is possible must be in the direction of improvization and organization. Here we have, then, one instance of military surgery in which the absence of all scientific endeavor makes it a science nevertheless.

Organization, then, is the magic wand which makes possible successful military surgery in the field. Professional military men accordingly lay great stress on its importance and young medical officers are thoroughly grounded in it before they are allowed to undertake the more at-

tractive work of tactics and surgical technics. It seems that every neophyte dreads this particular work, whereas in reality nothing can be more easy. One has but to think of certain phases of civil life to get over the first difficulties with ease.

In my work as instructor of my younger comrades I have always begun with a simile which is not an unusual occurrence in every city:

In a large factory located in the outskirts of a city an explosion takes place injuring a large number of workers. Some are seriously wounded, some less so. The aid that will be accorded these sufferers corresponds in many respects to that provided by the medical organization of a large military unit. Note that the corresponding army designations are added in brackets.

The factory surgeon (regimental medical officer) assisted by his nurse (hospital corps soldier) will secure all injured at his office (aid station) and not only dress their wounds, but assort them. Meanwhile the ambulance or ambulances will be coming to the scene (ambulance company). Some of the wounded may be sent back to work, others not seriously hurt to their homes for a brief rest (station for slightly wounded), while the gravely injured will be taken to some hospital in the city (field hospital).

Of course, while we have in the field the same principles of collecting, first-aid and transport, the organization is a little more complicated, due partly to the mobility of troops, partly to the greater number of casualties and principally to the fact that field hospitals are not stationary insitutions, but the difference is not so great that one typical example will not bring out the salient characteristics. Let us assume, then, that you accompany a large unit—a mixed brigade—on a definite mission. The accompanying map has been made so simple that it will serve to make the situation as real as it can be made on paper.

The brigade consists of a small cavalry detachment, to serve as scouts or outposts, three regiments of infantry, one battalion of artillery, one ambulance company and one field hospital, and arrives by train at Phalenville January 14, 19—, at about 2 p. m., where it detrains and halts for the night. You are told that the mission of the brigade is to take Dickson City, which is defended by a force about equal in strength to ours, but securely entrenched about half a mile south of the city, as is shown on the map. The field hospital is directed to take possession of the only hotel in town, but not to unpack its equipment, which is placed on eight large army (escort) wagons, each drawn by four mules. The ambulance company will accompany the troops as far as Frankville, where it will remain until further orders.

While you are interested only in the professional work of the medical men accompanying the brigade, it will be worth while to attend a conference of all medical officers of the brigade

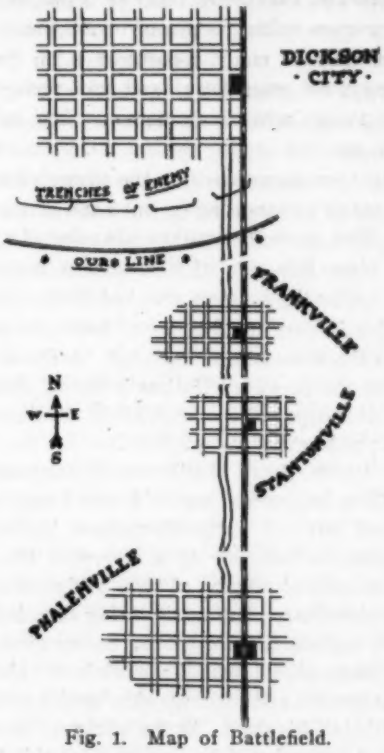

Fig. 1. Map of Battlefield.

during the evening. The brigade surgeon presides and as he has his information direct from the brigadier general he is in a position to outline the work on hand for the morrow. First the map is studied and places sought which will afford cover for regimental aid stations, the medical officer accompanying the artillery will have to be especially careful since artillery draws the enemy's fire. The ambulance company will establish a dressing station at Frankville the moment the first cannon shot is fired, while the field hospital will do nothing without further orders, since developments may be such that either the field hospital will not be opened at all or moved

up closer on the principle that it is easier to carry a mobile institution to the wounded than the wounded to some distant hospital. Incidentally Stantonville is designated as the collecting point for slightly wounded, a young medical officer being appointed in advance to supervise this station the moment word can be sent to go ahead with its establishment.

January 15. The command marched to the front soon after dawn. The ambulance company remained at Frankville and took possession of a church close to the north end of the town. The troops marched on. At about 11 a. m. the first cannon shots were heard and you rush to the front to see what is going on. The infantry troops are still resting behind a huge mountain, but all cannons are shelling the enemy's trenches. The enemy's cannon reply, but none of the shots take effect, since the artillery has selected a favorable place this side of a mountain depression. You notice the surgeon attached to the artillery and his helpers standing away from the cannon under the cover of a sort of cliff. A fire is burning on the ground. He has a box of dressings and other surgical material all in readiness, but so far he has nothing to do.

At 1 p. m. sharp whistle sounds are heard and the three regiments march forward and deploy (spread out) in battle formation, leaving one battalion in the rear as a reserve. The three junior medical officers of each regiment accompany the troops close to the firing line, but each senior regimental surgeon has the surgical boxes and litters placed behind some selected elevation of the ground and is prepared to render aid to the wounded of his unit. As the work will be nearly alike at each of the three regimental aid stations you remain with that of the first regiment nearest the road. The map does not show the undulations of the ground, but neither infantry nor artillery fire can reach you where you are. You notice that the surgeon has built several fires and is boiling coffee and soup over one, that he has put straw on the ground near some trees and that he has placed one of the litters over two adjoining tree stumps; this, he tells you, will be his operating table.

You ask about the aid the junior surgeons will render at the firing line and the surgeon tells you that there will be no other attempt made except to protect the wounds against secondary infection by the application of the sterile first aid packet, and the arrest of serious hemorrhage.

In about an hour the first wounded are arriving. Some come on foot, some are assisted by members of the hospital corps and of the regimental band, while one man just crawled in dragging his right leg after him. As you make notes you record: 2 wounds of the abdomen, one in upper left quadrant, one in lower right quadrant. Both men receive a hypodermic injection of morphin, a dressing over the wounds of entrance and exit and are placed in a half-sitting position near a fire on the previously laid out straw. A blanket is thrown over them. One begs pitiably for a drink of water but not a hospital corps man holds out his canteen—their instructions have been too explicit for such a mistake to be made.

The man with the helpless leg has a gunshot wound of the middle thigh, resulting in a bad compound fracture. He is dressed and splinted with long pieces of wood taken right from the ground. Two men are brought in who were hit in the head evidently by shrapnel balls, both are injuries at a tangent and the surgeon does no more than dress the wounds. As these men are being attended to more and more wounded come or are brought in so that you are unable to keep up with your notes. Some have dressings on and are near exhaustion—a glance by the surgeon and they are ordered being given some soup or coffee. Most men have gunshot wounds of the upper extremities, but as they have been dressed near the firing line, they are ordered to remain in a group. A man is brought in who is coughing up blood. He has an infantry bullet in his right lung. Morphin and a dressing is all he gets. The surgeon calls your attention to a man who has a small wound of entrance in the back of a hand and an ugly lacerated wound in the vola manus. A hospital corps man reports that the lieutenant could not control the hemorrhage and had put on a tourniquet, also the lieutenant asks the major to investigate, for this injury looks like a dum-dum bullet. You are horrified. But the surgeon smiles and tells you that the lieutenant is a new officer, otherwise he would not have made such a statement. All talks of dum-dum bullets are nonsense—the explosive effect is due to the closeness of the range, and indeed the man tells you that he was hit while running in a dash to gain ground against the enemy. You notice that the

tourniquet is applied over the man's tunic and naturally you inquire whether this is due to the cold weather, but you are told that the weather has nothing to do with it, that the tourniquets are always applied that way so that they should not be overlooked by the officers in the next station. The tourniquet is loosened and there is profuse arterial hemorrhage. The artery is caught and clamped with forceps. A ligature seems the proper thing, but the surgeon's fingers are numb from the cold. A few minutes later a compression dressing is applied.

Just about then a terrific sound startles all—indeed, you have already noticed men with parts of faces shot away, others who had a pulpified testicle laid bare, all in shock and moaning, but here you have the yelling of a maniac. The sergeant who has assisted in the assorting of the wounded reports that the man has been shot through the spine; that he is paralyzed in the lower extremities. A brief examination verifies the fact. The sergeant has already given morphin, but that does not seem helpful. Another dose is given, but the man keeps on yelling, begging to be killed. The sergeant is instructed to administer chloroform until the man quiets down. "I pity the men at the field hospital after they get him," the surgeon remarked with sorrowful voice. But there was no time left for sentiment. Another pitiable case diverts you—a shot through the pelvis, shattering the os pubis and undoubtedly seriously injuring the bladder. But no matter what part of the human anatomy was torn open, mutilated and destroyed, you notice but one routine treatment: Arrest of hemorrhage, protection of the wound, splinting of broken bones, morphin for pain and shock and rest and refreshment. But no, just as you have this formulated in your mind as the duty of a regimental surgeon at the aid station, an exception occurs. A man who has been shot through the neck suddenly shows symptoms of apnea. The surgeon whispers to you: edema glottidis. In a thrice iodin is painted over the neck and with few bold strokes of the knife taken from the small surgical pocket case that every surgeon carries in his field belt, the same belt that harbors the bullets for the automatics of the line officers, the trachea is opened and you notice that the air is drawn in with a loud sound. No tracheotomy tube is provided and the wound margins are held apart by two safety pins, through the interspaces of which a piece of tape is fastened around the neck. The man's life has been saved. A better technique may have been possible in summer time, but even the frost did not stop the medical officer from finishing his operation in a few seconds.

Your regimental surgeon, however, is worried, his station is becoming crowded, darkness is coming on and he would like to see all his seriously wounded under shelter. Just as he is about to send a message to the chief surgeon at brigade headquarters the sergeant shouts "the ambulances!" The surgeon is relieved. And suddenly there is animation at the station. The men with wounds in the upper extremities are directed to form under the charge of a non-commissioned officer of the ambulance company. They will be marched to Stantonville to the station for slightly wounded. You learn that the other regiments have also had serious losses, that even some artillery men have been shot and that the dressing station would be overcrowded if the men who need but little attention beyond rest and food were permitted in Frankville. You only wait to see that the man injured in the spine and the abdominal cases are gently placed on litters and thus carried to Frankville and then you jump on an ambulance to learn what will be done at the dressing station.

By the time you reach Frankville and enter the well lighted, warm church, you meet the chief surgeon, who tells you the good news that the enemy has surrendered the city by flight, that as no pursuit is contemplated the troops are already on their way to the town, that he has directed the burial of the dead and that many wounded both of friend and foe will be taken care of in the small civil hospital in Dickson City by the regimental surgeons, who now will be able to do scientific surgery. You accompany him through the huge ward. The men are being laid out on straw or mattresses taken from the civil population. A few straw-filled ticks are provided by the ambulance company.

In a separate room of the church, the office of the pastor, you find a condition reminding you of an improvised operating room in a private house, but outside of a renewal of blood-soaked dressings, of a readjustment of splints, of catheterization of the patient with the spinal injury and of the poor fellow with the shattered pelvis no other

surgery is undertaken except the raising of a depressed skull fracture.

When you ask why they do not undertake more surgery they point to the bad surroundings, to the lack of suitable equipment and to the fact that they have to move on early in the morning. And finally they ask you to point out to them the cases you think ought to be operated on. You at once recollect the abdominal cases. These men have undoubtedly perforated hollow viscera. They go with you to these patients. They are resting fairly comfortably and resent being disturbed. You are assured that a laparotomy at this time is too early. There are as yet no evidences of peritonitis and the men should be given a chance—maybe they have only small perforations, maybe no perforations at all—at any rate, they do not dare undertake such a delicate operation in which asepsis plays so important a role.

The surgeons point out to you that all these questions will be determined at the field hospital.

You ask when the patients will be transported to the field hospital. They answer you that normally, if a battle were still impending, the ambulances and litters would begin their work after the men have had a little rest, but now that a complete victory has been won the hospital will be brought to Frankville and is already on the march.

Thinking of asepsis you recollect that Frankville when you saw it in daylight is but a small village of 1,000 inhabitants with no hospital facilities, with no hotel, the city hall even being a dirty store, and you ask where the hospital is going to find place. You are asked to take a much-needed rest and wait until morning.

When you awake in the morning a medical officer takes you through the remaining street to the northern end of the town and there you behold an inspiring sight—a tented village, in front of which on a large pole you see the flag of your country and right beneath it a red-cross banner. You enter one of the wards, cot after cot along each side of the huge tent is provided with bedding, pillows, and you see already some of the wounded being put in pajamas. An agreeable warmth permeates the space from small portable stoves. The officers are busy, all dressed in white gowns, rubber gloves on their hands. Dressings are being sterilized, instruments boiled. In another tent designated the dispensary, junior surgeons are taking care of the fracture cases. They are working with plaster-of-paris casts. They are going to take the bladder case first. A perineal urethrotomy and permanent catheterization is the first labor.

During the night one of the abdominal cases got worse. But they will do no more than make a suprapubic incision for drainage and try to bridge him over with Fowler's position and saline enemata. The other man is doing well and will be carefully watched. Later, if fecal abscesses or fistulæ should form, the base hospital surgeons will have to overcome these conditions. Your spinal case will receive moderate extension and a bed to guard against decubitus. They will send him away as soon as possible. All they can do now is to catheterize him and keep him clean on account of his involuntary bowel movements. His prognosis is bad. The lung case is doing fairly well. They are going to strap his chest if there should be an indication for it, otherwise an occasional dose of morphin will be sufficient. They hope to have him evacuated before long, but should infection set in or a pyo- or hemo- or pneumothorax develop before then, they would aspirate or remove a piece of a rib, as the case may be. This is information you receive on your questions. But they have by now all the cases that have been collected from the firing line and as the field hospital can remain as long as is needed until all patients can be evacuated you will have an excellent opportunity to see the scope of surgery in a field hospital. The surgeons caution you, however, not to adopt their particular situation for all field hospitals, since they are practically now in a position to do base hospital work to a limited extent, but that in large battles, when troops may be continually on a move they could remain but a short time and that then all cases must be sent as soon as possible to the base hospital. However, even they would not undertake plastic surgery to repair defects.

Just then a man is brought to the operating table and anesthetized. They are going to do an enucleation of the eye. It is destroyed beyond recovery. Chloroform is used. You, who have dreaded chloroform in your surgical work at home, ask why ether is not used. You are told that here you have another phase of military surgery. Ether is too bulky, hence complicating the

transportation problem. Besides it is inflammable and most field hospitals are not so lucky as to begin their work in the morning, indeed, most operations have to be done in the night under artificial illumination. They point to the top of the tent. From the wooden support dangles a cluster of acetylene lights, which, you are assured, furnish an excellent light, but by an open series of flames.

They tell you that within an hour the hospital will have 204 inmates and that they will be overwhelmed with work, that three surgeons from the ambulance company who will have time to spare will assist them. Pending their arrival you are asked to visit the wards, the kitchen, the mortuary room and the laboratory which has been rigged up in the store tent.

Later you are asked to come to the operating room and you observe during the entire day and part of the night the following operations:

Case 3. Patient received a shrapnel wound through the neck low down laterally. The attendant noted that the man swallowed his coffee with great difficulty and that in a few seconds the dressing was stained with the beverage. Even the soldier diagnosed the case as a large wound of the esophagus. The surgeon dreads infection from the saliva and performs a prophylactic esophagostomy. The patient will be fed a few days per rectum. (Later you learn that the tracheotomized soldier is being treated the same way.)

Case 4. The soldier with the shot through the scrotum is placed on the table. Castration.

Case 5. A soldier with a shrapnel wound in the left groin. During the night there was rather profuse hemorrhage. An attempt was made to control this by tamponade. Another hemorrhage half an hour ago. Exposure of the wounded kidney, which was found to be very badly lacerated. Without doubt nephrectomy was indicated. The surgeon enlarged the external incision in an angle to enable him to reach the hilus with ease, for he insisted on tying every vessel and the ureter separately to avoid the danger of a secondary hemorrhage. If this were not possible you are told a good plan is to leave on a clamp for ten days and tamponade the cavity.

Cases 6, 7, 8. During the afternoon a completely severed radial nerve was dissected out and sutured. Later the ward surgeon reported another patient with a lateral wound in the neck complaining of difficulty of breathing. There was a suspicion of aneurysm (traumatic) and the carotis was tied. Scarcely was this patient off the table when another one was brought in. He looked exsanguinated. A large wound of the popliteal region was bleeding profusely which tamponade by the ward surgeon was unable to control—here the surgeon was unable to locate the bleeding vessel in the wound and the vessel had to be ligated above the wound *in lege artis*.

Then only came a tremendous number of dressings, splinting and an opportunity presented itself to watch the nursing of the soldiers in the wards.

In a few days later we shall meet with a veritable pus epidemic, the surgeon in charge remarked, and then we shall have incisions, arthrotomies, amputations.

Space forbids to enter any further in details. I believe I have shown in a general way the principal characteristics of military surgery in the field. An attempt to discuss all possible situations and all phases of military injuries would mean to present a book on sanitary tactics and a formidable text-book on military surgery.

At the base, of course, corrective surgery comes into its own and here sometimes unusual skill is needed. The protheses, the cure of ankyloses, the surgery of late complications of infections, aneurysmorrhaphies and the like will often tax the combined skill of radiographer, pathologist and operator.

We have then two classes of military surgery: surgery at the front and surgery at the base. The latter differs from civil surgery in that all plastic work is rendered very difficult because of greater tissue destruction, but, of course, the experienced operator will find an opportunity for good use of his surgical skill and ingenuity.

For frontal surgery I believe the following definition best:

Frontal surgery differs from civil surgery in the adoption of a conservatism necessitated through the massive character of the work and the restrictions imposed by environment, plus the application of a simplified technique in vital indications all of which is aimed to be preparatory for subsequent radical or reparative operative therapeusis.

TOXIC DELIRIUM AND ITS MANAGEMENT.*

H. DOUGLAS SINGER, M. D., M. R. C. P.
Director, Illinois State Psychopathic Institute.
KANKAKEE, ILL.

Before taking up for consideration the management of patients presenting a picture of toxic delirium, it has seemed wise to make a few remarks upon the nature of this disorder of body functioning. One reason for so doing is the very widespread tendency to regard the appearance of what are called mental symptoms as evidence of special disease of the mind. Mind is not an organ nor even a material thing, hence it is strictly inaccurate to speak of mental disease. Mind is nothing but the brain in action. The brain is nourished by the same blood and subject to the same intoxications as are the other tissues of the body. The appearance of delirium is only an indication that the brain cells are suffering severely from the poison which is circulating in the blood and does not constitute a different disease condition. Clinical experience has, it is true, taught us that delirium in the course of some of the infectious diseases of the body is generally an index of unfavorable prognosis, but it does not in any way alter the situation as regards the particular disease under treatment. In fact, one may go further and state that in most conditions of intoxication there is evidence of brain involvement in the feeling of lassitude, easy fatigue and malaise, with difficulty of concentration of attention, relatively poor judgment and irritability which, in greater or less degree, are almost constant concomitants of any toxic illness.

The question of the management of a case of delirium is then very similar to that of the treatment of any other symptom, such as pain or fever. It is not a problem of the administration of some specific remedy for a particular disease process. The delirium must be weighed in the light of the special indications it has upon the course of the reaction to the toxin, whatever it be, which is present in the body.

Having decided that delirium represents a condition of damage to brain tissue, we may next consider the question as to the meaning of the term. Perhaps the best method for this purpose is to consider the functions of brain tissue and to indicate the effects of interference with them by toxins. Brain cells, including their processes, like all other nerve cells, have only two types of function. First comes the maintenance of their own existence, including nutrition and excretion of waste products, and second, the more specific function of conduction of states of excitement. An adequate stimulus applied at any part of the cell starts a condition of nerve activity which then tends to spread in all directions along the cell, a state of functional activity in one portion being an adequate stimulus for the contiguous parts. When brain cells are in functional activity of this specific kind, consciousness is present. Obviously, for the proper performance of the more specific conduction functions, the maintenance of proper metabolism within the cell is essential. Conditions of intoxication are conditions in which there is an abnormal cell metabolism, and consequently a disorder of specific function.

The possibilities in the way of disorder of conduction are only two, viz., increased excitability and diminished excitability. This latter may be carried to the extent of entire ablation of function. Please notice that we have not assumed any secretory or other activity of brain cells. They do not secrete or create thoughts, feelings or volition. They are merely capable of stimulation and the conduction of the state of excitation. This state of excitement "is" consciousness and the particular quality of the state of consciousness existing at any given time is dependent upon the particular combination of brain cells in action at the moment, this particular combination being determined solely by the stimulus which caused the activity. One may justly assume that for full consciousness there is necessary full normal activity of the cells and, conversely, that anything short of full activity means less consciousness or, as it is usually called, lessened clearness of consciousness. Such a disturbance is one of the most prominent features of delirium and is generally described as clouding of consciousness. Stimulations of the brain pathways are not as successful as in health, with the consequence that the states of consciousness are not as clear.

But the various brain pathways are not necessarily equally affected. Certain toxins have a special affinity for certain particular groups of nerve cells. Again, some nerve cells are better able to withstand intoxication than others. With

*Read before the Englewood Branch of the Chicago Medical Society, May 2, 1916.

these two added factors it is obvious that there may be marked differences in the pictures resulting. To consider the second factor first it may be stated as a general proposition that the better organized, by which one means the more used and earliest developed, pathways are more resistant to damage than the less well organized. Consequently in any diffuse damage to the brain those higher associations which represent the latest acquisitions of both race and individual are the paths that suffer first and most. This means that the more complex and discriminating states of consciousness are less clear than the lower and simpler. The consequence is a failure to correctly discriminate or fully grasp the various changes going on around, and the patient, while able, perhaps, to distinguish correctly single items in a given situation, fails to grasp the meaning as a whole and consequently makes mistakes or, as we say, becomes more or less disoriented and unreliable. The particular form which the misinterpretations (illusions) take is intelligible upon the same basis. The situations which are of most interest to an individual are those which are of the greatest importance in his struggle for existence. They are the ones which go to make up what we call desires and fears. They are hence pathways often used and therefore better organized and more resistant to damage than others belonging to less important situations. Consequently an individual suffering from a general brain intoxication will not only make mistakes in interpreting changes occurring in himself and his environment, but will tend to interpretations which lie in the category of his desires and fears, more especially the latter.

Besides these manifestations of diminished function, there are also phenomena belonging to the realm of hyperexcitability. With any lesion, increased excitability is the first stage of damage. If the damage be progressive, as with continued intoxication, this will later give place to diminished and finally abolished function. It is obvious from what has already been said that since the lower levels of brain activity are the more resistant they will frequently show evidences of hyperexcitability, while the higher have become less capable of stimulation. The lowest levels in the brain are those, the activity of which are simple sensations and it is here that one perceives especially the evidences of hyperexcitability. Stimuli which in health would give rise to no excitation of the brain and consequently to no sensation, may, under the conditions of intoxication, be adequate. The consequence of this will be the occurrence of sensations without any adequate external stimulus or, in other words, the patient hallucinates. It is in this region especially that there seem to be different affinities for different toxins and we know that some poisons, such as alcohol, have an especial predilection for the visual pathways with consequent visual hallucinations; others, such as cocaine, affect the regions connected with the special sense of the skin resulting in especially marked skin, or haptic, hallucinations, and so forth. The special form which hallucinations assume is again determined by the patient's fears and desires as were his illusions.

Delirium is thus a picture compounded of clouding of consciousness resulting in disorientation and illusion with hallucinations and more or less strongly marked fear and apprehension, the particular form of which depends upon the nature of the toxin and the patient's experience and make-up. There are all degrees between a mild unrest and apprehension up to extreme disorientation and final coma, which means extreme lowering of all cerebral function. Necessarily I have not, by any means, covered the whole ground, but I think enough has been said to indicate the manner in which delirium comes about and to show that it is not necessary to draw upon metaphysics in order to understand what is taking place.

One may ask oneself, why delirium is not a more frequent accompaniment of intoxication. If we disregard the lesser evidences to which I have referred above and which are almost constant, one can only conclude that brain cells must be especially resistant to many toxins. This, indeed, seems to be the case and we tend to regard the easy appearance of delirium under intoxication as an index of poor construction. Certainly many persons with evidences of defective development do show a proneness to delirium and an intolerance for alcohol and other drugs. This, in one way, is of some importance in weighing the significance of delirium in any given case, though it must not be forgotten that defective construction allowing the easy occurrence of such a symptom is also liable to militate against the chances of recovery. It should also lead to especial care to avoid intoxication and to give especially care-

ful consideration to the treatment, when intoxicated, of such individuals.

I do not propose to bother you by attempting to describe the histologic changes which accompany brain intoxications and will merely mention that they are fully as characteristic and obvious as are the changes in the liver, kidney and other cells. It is, however, important to remember that the nervous system differs from all effector organs of the body in the fact that its various cells have different connections from one another and hence that the loss of certain cell groups is a much more serious matter than the destruction of, say, a number of kidney cells. These latter apparently are all exactly alike and much more numerous than is absolutely necessary so that no permanent harm may result from the destruction of even a whole kidney. Possibly that is one of the factors which in evolution has resulted in such a high resistance to damage on the part of nerve cells. Be that as it may, it must be remembered that intoxication of nerve cells carried beyond a certain point, results in the inevitable death of the cell, so that while we are accustomed, and correctly, to regard recovery as the rule from the disorder of brain function known as delirium, provided the patient does not die from the intoxication, yet he does not always fully return to his previous mental level. You are probably all familiar with the deterioration that sometimes follows a severe attack of typhoid fever, the diminution in energy and activity with lessened acumen and business efficiency. Often this is only temporary, lasting several months or a year, and then indicates that many cells have very slowly recovered functional activity but sometimes it is more permanent.

The number of toxins which may give rise to delirious states is very large and their variety great. They may be grouped under the following heads:

1. Drug and food intoxications, e. g., alcohol.
2. Intoxications due to the growth of microorganisms, e. g., typhoid fever, malaria and pneumonia.
3. Intoxications due to disease of various organs interfering with excretion of products of metabolism, such as uremia, and also those resulting from insufficient nourishment, either general, as in starvation and cardiac insufficiency, or locally in the brain, as in cerebral arteriosclerosis.
4. Strictly autogenous intoxications the nature of which is often very obscure, e. g., accompanying conditions of severe emotional upset such as fright. Under this category would probably come the delirious states observed occasionally in hysteria and dementia præcox.

Since the delirium is only a manifestation of intoxication, it is obvious that the treatment in the first place is that of the general state of intoxication and concerns the problem of the elimination and neutralization of the toxin by the administration of proper antidotes. In this phase of the question, which, of course, depends upon the nature of the toxin, I do not propose to enter as it would carry us much too far. But, since delirium is an index of severity of intoxication or low resistance on the part of the patient, certain general principles may be laid down in the way of general treatment of severe intoxications and incidentally these may be considered as measures which may be adopted for purposes of prevention of the severe reaction where this seems indicated. To this may be added certain conditions arising from the fact of delirium. It is to be understood that I am speaking more particularly of cases of prolonged intoxication, with those belonging to the specific fevers more especially in mind, as such are of the greatest practical importance to you as general practitioners.

In every case the measures to be adopted must be determined by a careful study of the case as a whole. It is to be remembered that it is not possible to find remedies which influence just one symptom, leaving the function of other organs, not concerned in its production, unaffected. It is, therefore, not possible to lay down any rules for a routine treatment. Since, in a case of intoxication, we are generally dealing with a temporary disturbance, either because the development of immunity will limit the duration or because the toxin can be withheld and eliminated, the main object of symptomatic management must be to conserve the body strength and avoid death from exhaustion. Certain desiderata stand out with especial prominence in this effort. The reaction of the body and especially the apprehensive restlessness of delirium imply a considerable increase in general metabolism which is especially marked where there is high fever. Sometimes the delirium seems to be the outcome of deficiency in material requisite for the violent metabolic exchanges rather than the immediate consequence of the toxin itself. The administration of more adequate food will, in such cases, result in a

diminution of the reaction even though the intoxication still be present.

In the selection of a suitable diet there is nothing of greater importance than the supply of water. The body contains a large store of materials which, upon emergency, can be utilized as fuel, but there is no reserve of water. In states of this kind blood counts will often reveal a marked concentration of the red cells. In some cases examined at the Psychopathic Institute by Dr. Weisbrenner, he found the cell count in one case as high as seven million per cubic millimeter and it was noted further that the apprehensive restlessness markedly diminished after the administration of normal salt subcutaneously. The cell count dropped at the same time, but the change was only temporary and the administration of water had to be repeated. Patients should, therefore, be encouraged to take plenty of water, and where it is impossible to give enough by mouth, recourse should be had to other methods, by rectum, subcutaneously or intravenously. It seems at least possible that some of the good effects obtained from the use of the prolonged bath are due to absorption of water through the skin.

With regard to food materials, consideration must be given to the fact that the cells of the digestive tract are suffering from the intoxication and that in consequence assimilation of food is impaired. At the same time the fact of delirium almost always means an increased metabolism. It is, therefore, necessary to supply materials in a form in which they are easily absorbed and have a large caloric value. For this reason it is wiser to use liquid food and it may be predigested if necessary. In the dietary carbohydrates, particularly the sugars, will be found to have a special value. In the body they are readily combusted and very materially save nitrogenous constituents which are not so easily absorbed under conditions of intoxication. Under this category comes also the question of the administration of alcohol. Whatever be one's views as to the use of alcohol in ordinary conditions, there can be no question that it is a very readily available source of energy, easily absorbed and readily oxidized, acting in much the same manner as glucose. It nevertheless should, if used at all, be given well diluted. The dosage will necessarily depend upon the habits of the patient in the use of alcohol. To a man unaccustomed to it, 50 c.c. of alcohol (about 3 oz. of whiskey) during the 24 hours may be considered a full ration. Besides the food value this has also some effect as a drug in that it irritates the mucosa and may thus stimulate appetite and it has also some, though slight in these doses, narcotic effect. It should not be regarded as a cardiac stimulant.

Very often in these cases there is considerable difficulty in getting the patient to take enough food. The resulting starvation and consequent acidosis tend to very seriously increase the restlessness and delirium which in turn mean increased metabolism, and thus the establishment of a vicious circle. Under such conditions resort must be had to other methods of feeding. Rectal feeding with completely predigested materials, including glucose, will often prove efficacious. Feeding by means of the nasal tube may be resorted to if the patient does not fight too much against the procedure, but the effects of a struggle may be sufficient to offset the value of the food. Glucose administered subcutaneously well diluted with normal salt, is at times necessary when it is impossible to give sufficient food in other ways. When hypodermoclysis becomes necessary because the patient does not take sufficient water, it is often wise to add glucose as a nutrient.

I have laid considerable stress upon the food and water question for the reason that it seems to me the most important next to that of specific neutralization of the toxin if that be possible. Starvation is often one of the most important factors in determining the occurrence of a delirium. But there are also certain other remedies to be considered in checking metabolism by diminishing restlessness.

For this purpose the patient should be kept as free as possible from stimulation of all kinds. A quiet room, screened from bright lights, in which there is as little movement as possible, should be selected. A quiet, tactful nurse must, at all times, be on duty, but may be placed away from the patient's line of vision. Such conditions are not easy to obtain in the average home and this may well be sufficient reason for removal to a hospital. These measures alone may be sufficient to keep the restlessness within reasonable bounds. If not, and the condition is likely to persist long enough to render it all-important to secure some rest, recourse may be had to other methods of sedation.

First will come hydrotherapeutic measures. In

the ordinary home prolonged baths are out of the question and in any event must be adopted only with the most careful consideration and supervision because of the danger of collapse. Practically we are limited to the use of tepid sponging and packs. The former has a powerful effect in reducing fever, but because of the exposure which is necessary, is attended with some risks. However, in many febrile cases it will be found useful. I have seen more than one case of collapse in cases of pneumonia from tepid sponging and for that reason am decidedly opposed to its employment as to that of other antipyretics in this disease. Packs can be used either hot or tepid. In the former the patient is covered with blankets to prevent cooling by evaporation. The consequence is that the pack rapidly heats up and causes profuse sweating. This application is decidedly exhausting and should never be employed except in sthenic cases, and cold water or ice should be applied to the head. From 10 to 15 minutes is, as a rule, long enough to produce full effects and the process of heating must be carefully supervised.

In the cool pack, the covering is thin and permits of evaporation so that there is no heating. This procedure is much less severe but still sedative. Cool applications to the head may also be used and watch should be kept to see that the pack does not heat nor cool too rapidly. In such a pack a patient may stay one or two hours and should he fall asleep may be left until he wakes without harm. With adequate evaporation the pack dries in two or three hours.

Should these procedures fail to produce sufficient rest, estimated upon the basis of the probable duration of the illness and the patient's vitality, it may be necessary to employ drugs. But I would insist that proper feeding and supply of water should be first attended to. Drugs are toxins and must, to some extent, still further embarrass the tissues. First, let me warn you concerning the use of morphin, probably the first drug that would come to mind. As in all conditions in which excretion is interfered with, morphin has a much more pronounced effect and is highly dangerous, especially if the doses be repeated. I would, therefore, strongly advise against its use whenever possible.

Probably the most frequently employed drug for such conditions today is hyoscine given hypodermically. I believe that it should not be combined with morphin, as is often done in these cases. Hyoscine alone has but little effect upon the heart and acts especially in reducing motor restlessness, it does, however, depress respiratory centers and, therefore, should be used with caution. When the restlessness is not so extreme and yet some means to secure sleep seem indicated, there are other drugs which may be employed, often with entire success. Probably the least harmful of all is paraldehyde, objectionable mainly because of its very unpleasant, and often prolonged, odor and taste. Chloral, if it produce sleep in moderate doses, may be safely used, but it is a powerful cardiac depressant in larger doses and should not be administered in cases where there is evidence of cardiac weakness. Sulfonal and trional have but little effect upon the heart and are excellent hypnotics in the absence of pain. Sulfonal requires two or three hours to produce effects on account of its slow absorption, while trional acts rapidly, and it will often be found useful to combine the two in a single dose, the former coming into action when the latter is beginning to wear off. Veronal has been popular but is probably more toxic in that it is less rapidly excreted. Bromides in my experience are of little value in states of delirious intoxication.

One last question in the general management of these cases which must be touched upon is that of the care of the cardio-vascular system. First, let me enter a protest against the indiscriminate use of so-called stimulants, especially strychnin. This last drug is not a true cardiac stimulant at all, but does increase the excitability of the nerve cells of the cord and medulla. When it is realized that, among the conditions postulated above as endangering the patient's chances of recovery, especial stress was laid upon the need to keep metabolic activity within bounds, it should be obvious that any drug, such as strychnin, which tends to increase metabolism, must be used with great caution. It is quite true that often there may be urgent need for increasing temporarily the force of the flagging heart. If this can be accomplished it may be that the patient can be tided over the period of severe intoxication and thus carried to a time when the demands upon the heart will not be so great. The drugs available for this purpose are digitalis and strophanthus, the action of which is slower and more prolonged, ammonium salts, adrenalin and

camphor which act more rapidly but also more temporarily. Hence our chief aids in this direction must be the digitalis group. Into the methods of administration I need not go, but may insist that the possibility of interfering with digestion must be seriously weighed.

The avoidance of bed sores and the need for attention to secure bowel movements may here be passed over, although important, and the necessity for constant supervision of such patients to avoid the dangers of suicide or running away requires only a word of emphasis. But in concluding, I do wish to impress upon you the need for some hospital in which such cases can be treated. The average general hospital cannot adequately care for them. Quite a few reach the State hospitals only after much delay and considerable moving around which cannot fail to militate against recovery. There is now on foot a measure which, although recommended repeatedly during the past few years, has hitherto been deemed impossible to carry out. This concerns the establishment in the heart of Chicago of a State Psychopathic Hospital which would serve as a sorting house for all the insane of Cook County, with full facilities for the treatment of such patients as may be capable of recovery within a short time without commitment to one of the larger State hospitals, including those of which we have been speaking. This hospital would provide, besides this, means for the instruction of physicians in psychiatry, out-patient departments for advising those persons who may be in danger of some mental breakdown and thus securing early consideration, and adequate facilities for the study and investigation of psychiatric problems. The crying need for some such institute must be obvious to you all and I wish to call upon you to use your whole influence to support and carry through the bill which we hope to present before the next General Assembly. It will mean some considerable expenditure of money to secure the necessary site and buildings, but this is small compared with the benefits to be achieved, a fact which no one can better appreciate than the physicians of this city. If conscientiously applied, no man has a greater influence than the doctor, and I wish to leave this appeal with you now with the hope of being able to furnish you with more details later.

THE DIAGNOSIS OF STERILITY.*

V. D. LESPINASSE, M. D.
CHICAGO.

Mr. Duncan's statistics collected in Scotland in the vicinity of Edinburgh, show that from 1 to 6 to 1 to 10 marriages are without issue. Of 503 marriages among the British peerage, 81 were without children after a period of 5 years, or the proportion of 1 to 6 2/7 per cent.

The age of the wife is an important factor in the problem of sterility; those that are married between 15 and 19 are about 7 per cent. sterile; those married between 20 and 24 are the most fertile. From the age of 24 the percentage of sterility gradually rises until at the age of 50 it reaches practically 100 per cent.

From a practical point of view, we can take three years as the maximum normal time for the appearance of children. If no children are born within three years the case should be considered one of sterility. This time, however, is subject to some error, as 7 per cent. of fertile couples bear their first children after three years of marriage. As the age of the wife increases, the interval of time from marriage to the appearance of the first child increases, ranging from 9.7 per cent. at the age of 15 to 19 up to 15.6 per cent. at the age of 25 to 39. From the above data, we can state that the diagnosis of sterility should be made on any couple that have been married three years and have no children and have used no means to prevent conception. In determining the cause of sterility, we should take into account the following conditions: 1. obstructions in the sexual tract of the male; 2. obstructions in the sexual tract of the female, and 3, absolute failure of, or imperfect development of, the essential male elements; 4, absolute failure of, or imperfect development of, the essential female elements; 5, alterations in the secretions of the female sexual tract; so that her secretions are destructive to the life of the spermatozoa.

When confronted with a presumably sterile couple one should obtain a careful medical history of both individuals; paying particular attention to anemia, gonorrhea, mumps, tuberculosis, exposure to different sorts of electricity, abdominal diseases, trauma to the testicles and to any disease, injury or bodily conformation that would

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tend to indicate some disturbance in the glands of internal secretion. It is my practice to study the male first, as the male secretions are easily available and relatively easily studied.

The physical properties of the semen are noted, paying particular attention to the consistency. A normal semen coagulates as soon as discharged and then gradually becomes liquid again, this process taking from ten minutes to hours, depending on the various factors. Exposure to air seems to hasten the liquefaction of the coagulum. Most azoospermia semens have little, if any, clotting ability and are quite thin.

Next we examine the specimen for spermatozoa. If they are absent we have located the trouble in the male and then should investigate along chapters 1 and 3. If spermatozoa are present and the specimen is less than two hours old, they should show considerable motion. If motility is absent, we have another factor in the sterility. Next the morphology of the sperm should be carefully studied. If we find sperms present, they should be examined as to their motility and morphology. A specimen that shows large numbers of deformed sperm is undoubtedly a sterile specimen. These deformities of the sperm are usually much enlarged heads, double heads, double tails on an enlarged head and these sperms are rarely seen to move. On the other side we may have a very small head with a short tail, or a small head with a short tail that is curved into a "U" shape. The normal sperm head takes the blue hematoxylon stain. Immature sperm takes the eosin stain; hence a sperm that stains pink with the eosin is a sterile sperm. This is relatively rare.

On the side of the wife, she should have a thorough medical and gynecological examination. The medical examination should pay particular attention to anemia and fat. It is well known that fat women are less likely to conceive than others. Many of these fat types are cases of hypo-thyroidism and examination will disclose some slight goiter or they may be cases of hypo-pituitarism. To diagnose these they should be given a sugar tolerance test together with a blood pressure reading. The gynecological examination should be thorough and include the passage of the impregnating catheter through the cervix into the fundus of the uterus. Naturally, this will determine the presence or absence of infantile uterus, versions and flexions and the presence or absence of tumors in the fundus, tubes or broad ligaments. If any tumor is found that definitely obstructs the cervix or both tubes, naturally we have discovered the cause of the sterility.

In regard to versions and flexions, as the cause of sterility, there is a great difference of opinion. During sexual intercourse with its attendant congestion the cervical lumen may be closed tight enough to prevent the passage of sperm, and in practically all of these cases it is possible to pass my impregating catheter into the fundus of the uterus. Hence, before doing some of the plastics on the cervix, to cure sterility, it is wise to pass an impregnating catheter a few times and inject two or three minims of semen into the fundus; if the cause of the sterility was due to cervical stenosis, this treatment will remedy at once and save unnecessary operation. If this technic fails, we must look elsewhere than the cervix for the cause of the sterility. Unfortunately, the diagnosis of bilateral obstruction of both tubes from any ordinary examination short of laparotomy is very tedious and difficult.

To diagnose tubal obstruction or ovarian nonproduction it is necessary to try and obtain sperm from the fundus of the uterus. Sperms travel 3.6 mm. per minute; hence if they went right along it would take a sperm from 15 to 20 minutes to go from the cervix to the uterine end of the tube. The attempt to find sperm in the uterine fundus should be made from one hour to 24 hours after intercourse. If no sperm are found it means nothing; if numerous actively motile sperm are obtained it probably means tubal obstruction or ovarian disease.

The diagnosis of obstruction in the cervix is relatively easily made by the inability to pass an instrument, but this inability may be relative and not absolute. It is a question as yet unsolved as to the exact size of opening necessary to admit spermatozoa; hence many cervices that take an instrument readily may not admit the passage of sperm. The next step in the diagnosis is the so-called coitus test or cervical test of Huhner. This test is carried out in the following manner: The couple are instructed to have intercourse and then the wife comes to the office as soon as possible afterward; aiming to arrive about one hour after coitus. She is placed in Sims position, the speculum introduced and the mixture of semen and vaginal secretion can be seen. Note is made as to its presence or absence on the cervix, and note is also made of the amount. This material

is taken on a wire and examined microscopically under suitable conditions to determine the effect of the vaginal secretion. Usually at the end of an hour the motility of the spermatozoa in the vagina is markedly diminished, or may be entirely absent. Next the cervix is pulled down, a platinum wire introduced into the cervical canal and this material examined for sperm and for the motility of the sperm. Sperm should be present and actively motile.

If sperms obtained from the cervix are not motile it means that the cervical secretions in this particular woman are destructive to the life of the spermatozoa. The normal cervical secretions are alkaline and the reaction of the secretion should now be taken. If they are acid we know we have located the trouble. When we have eliminated the cervix as a cause for sterility we should obtain sperm from the fundus of the uterus. If this sperm is alive and active, we can feel certain that the cause of the trouble is not in the fundus of the uterus itself, but somewhere above the fundus of the uterus, namely, in the tubes or ovary. To determine the condition of the tubes and the ovaries, a laparotomy with the catheterization of the tube is necessary.

In the differential diagnosis of azoospermia as between a fault of transportation (namely obstruction) and a fault of manufacture, the following points are valuable.

FAULTS OF PRODUCTION.	FAULTS OF TRANSPORTATION.
Size (testicle), small.	Normal size.
Consistency (testicle), hard.	Normal.
Epididymus, normal or atrophied.	Normal or enlarged.
History:	
a. Always small.	a. Epididymitis.
b. Mumps.	b. Trauma (slight).
c. Exposure to X-ray or ultra violet light.	c. Mumps.
d. Trauma (severe).	d. Operation on perineum.
	e. Operation on cord.

Final diagnosis must be made by opening the scrotum and direct examination of the vas, epididymus and testicle.

To diagnose absence of ovulation or defects in the ova, as is possible with the spermatozoa, is impossible. I believe that an ovary can functionate as regards its internal and not its external secretion, the same as the testicle does, but to diagnose this condition during life is impossible at the present time except by inference.

The interaction of the spermatozoa from the husband and the genital secretions from the wife should be determined when we have worked the case up to the point of elimination of defects in the sperms and the absence of obstructions in the cervix. This is carried out on a slide by mixing cervical and fundal secretions with the spermatozoa and also by mixing blood sera of the wife with the spermatozoa on the slide. Normally with good conditions and a good sperm the sperms should continue movement for several hours.

THE SCHICK REACTION, ITS PRACTICAL VALUE.*

ARTHUR SPRENGER, M. D.
PEORIA, ILL.

Following the introduction of this test by Schick of Vienna in 1913 much skepticism prevailed as to its practical value. Since that time, however, a number of investigators have published detailed reports relative to the Schick reaction and in the main these reports have demonstrated its practicability.

Schick described a clinical reaction for the susceptibility or insusceptibility of the human organism to diphtheria toxin. The test consists of the intradermic injection of minute amounts of diphtheria toxin. After twenty-four to forty-eight hours if antitoxin is absent, or present in very small quantities, i. e., amounts less than 1/30 unit of antitoxin per c. c. of blood (Schick), or 1/100 unit (v. Behring), a positive reaction will appear. This reaction is characterized by a circumscribed area of redness about 2 to 3 cm. in diameter together with a varying amount of infiltration and some tenderness to pressure, but without constitutional symptoms. After about six days the inflammatory process fades with superficial scaling leaving a brownish pigmentation.

Basing his studies on the experiments of v. Behring, Schick standardized the toxin used for this test. He determined the amount of toxin necessary to kill a 250 gm. guinea pig, this amount representing the Minimum Lethal Dose. Schick in his work used 1/50 of this M. L. D. or 0.1 c. c. Other writers have used varying amounts of toxin, but the majority are using 0.2 c. c. diluted in physiologic salt solution.

In those cases not susceptible to diphtheria toxin either by active or passive immunity, i. e., whose sera contained more than 1/30 unit antitoxin per c. c. of blood, no reaction took place

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showing that the toxin injected was neutralized by the antitoxin normally present.

The Schick test is essentially a test for a condition of immunity to diphtheria and it was this fact that led us to make use of it in our work at the Guardian Angel Orphanage near this city. The institution is located about one mile outside the city and is ideally situated from a sanitary standpoint. The children are a healthy, vigorous lot and aside from the ordinary run of work, disease is a rarity. Until this winter the institution had never known of an infectious disease.

In November, 1915, two cases of diphtheria appeared. Antitoxin was given at once, a rigid quarantine was established and no new cases developed. In January of this year, one of the nurses at the Orphanage developed a clinical diphtheria, and in spite of every precaution new cases developed with alarming regularity. About Feb. 20 new cases were appearing at the rate of one and two a day, even though a rigid quarantine was maintained. The outlook was very serious, owing to the fact that there were approximately 125 children in the institution.

Two courses were open to us:

(a) Immunization of those children not affected.

(b) Application of the Schick test with immunization of those children showing a positive reaction.

We decided to follow the latter course and the Illinois State Board of Health supplied us with enough of the toxin to make the tests. The amount injected as furnished by the Illinois Board of Health is 0.2 c. c. diluted with physiologic salt solution. The site of the injection is the outer side of the arm. The surface is prepared in the usual manner, and then with a fine needle the injection is made intradermically. When this is properly done, a white blister like elevation appears, the depressions corresponding to the hair follicles.

On Feb. 24 and 25, we applied the test to 116 children, ranging in age from 3 months to 14 years. The reactions were examined in 12-14-36-48 and 72 hours, The table shows there were 40 positive reactions or about 34 per cent. There were 73 negative reactions or about 63 per cent. and 2 pseudo reactions or about 1 per cent. Our readings were made at the end of 48 hours to eliminate the possibility of error, owing to the presence of traumatic and false reactions.

Age of cases tested in years:	1	2	4	5	7	8	9	10	11	12	13
No. of reactions.....	2	2	1	5	6	5	5	6	4	1	3

It is interesting to note that 3 days after one of our cases was injected and showed a positive reaction she developed a tonsillar membrane. A culture was taken, but without awaiting the laboratory report we administered antitoxin. The following day we received a report of a pure culture of Klebs, but our patient was well on the way to recovery.

From our findings we cannot agree with earlier reports that immunity is a family characteristic as in 5 instances members of the same family reacted in an opposite manner. Many writers seem agreed that immunity is a family trait; in fact, we have yet to read an article to the contrary, but our results are not in accord with these reports.

Several of our cases who had diphtheria two months previously, gave a negative reaction, while one case in particular, who had diphtheria three weeks before and received antitoxin, gave a positive reaction, showing that passive immunity is of short duration in some individuals.

In this series we had 2 pseudo reactions which appeared within twelve hours, were of smaller area, not circumscribed and disappeared within 2 to 4 days without desquamation. We administered antitoxin to our false reactions and would advise that this be done by all who are inexpert in the interpretation of the reaction. A pseudo reaction bears no relation to the amount of antitoxin present in the organism as it is merely an expression of the tissues to the protein in the bouillon.

A traumatic reaction was occasionally seen at the site of the injection at the end of twelve hours; a slightly reddened area measuring from 2 to 3 mm. in diameter which disappeared within 24 hours without desquamation or discoloration.

We immunized the cases giving a positive reaction by administering 1,000 units of antitoxin. Since that time we have had no new cases of diphtheria.

The importance of making use of this test cannot be too strongly emphasized. As can be seen from the above table, we made but 42 injections of antitoxin in a series of 116 cases—a distinct saving in serum and in inconvenience to the children had we not used the test.

It is a well known fact that the giving of antitoxin indiscriminately involves a risk. Occasionally we get a reaction to the serum in which alarming symptoms develop. Urticaria with severe itching of the skin, tachycardia with shortness of breath, general depression and anaphylactic shock are some of the symptoms usually seen. Frequently a control test is used in the other arm in which we inject a small amount of antitoxin. In this way we can detect a case which is unduly sensitive to horse serum as these cases give a marked reaction to antitoxin as evinced by redness, swelling and pain at the site of injection.

One of our cases developed a tonsillar membrane, but the Schick test was negative. Culture from the throat showed the presence of the diphtheria bacillus. This case proved to be a diphtheria carrier, hence the negative Schick test. The giving of antitoxin was useless as the patient had enough antitoxin normally to neutralize the diphtheria toxin.

One of the most interesting features of our work is that of the 63 per cent. giving a negative reaction not one developed diphtheria. It is true four negative cases complained of sore throat and exhibited a temperature, but an examination showed the offending organism to be of the streptococcus group.

About two months have elapsed since the antitoxin was administered; no new cases have appeared, the active diphtheria patients after a thorough examination of the throat have been released from quarantine and what was apparently a serious menace to the institution was completely checked, owing to the efficiency of the Schick test and antitoxin.

CONCLUSIONS:

(a) The Schick test is of positive value in determining the susceptibility of a patient to diphtheria.

(b) It is of value in differentiating doubtful membranes of the throat.

(c) It shows that passive immunity in some cases is of short duration.

(d) Our observations do not agree with others that immunity is a family characteristic.

(e) The Schick test insures a greater saving in antitoxin as it has demonstrated that less than 50 per cent. of children are susceptible to diphtheria.

(f) Diphtheria carriers give a negative Schick reaction. The laboratory report and the test conflict, but we know that most diphtheria carriers have enough antitoxin to neutralize the toxin present.

(g) The use of the Schick test together with a control serum injection is of value in detecting a case hypersensitive to horse serum.

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623 Jefferson Building

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE THIRD CERVICAL VERTEBRA.

COMMENTS ON SOME OF THE ANSWERS TO QUESTION NO. 19 IN THE RECENT COOK COUNTY HOSPITAL EXAMINATION.

JOHN RIDLON, M. D.
CHICAGO.

At the recent examination for appointment as internes in Cook County Hospital one hundred and fifty took the examination. There were twenty questions; two of them, nineteen and twenty, were on orthopedic subjects.

The answers to "Question 19" were read by Dr. Philip Lewin, Dr. T. P. Lynam and myself.

One does not expect a medical student even after a four-years' course to have a very full knowledge of orthopedic subjects. It is rather hopeful when a young doctor does not know many things, particularly if he knows that he does not know such things; but when he is crammed full of misinformation his condition is pathetic, and he becomes a menace to the community.

As we all know the men seeking for appointments at the Cook County Hospital are as a rule the choice men from their classes. Read then the following comments and imagine if you can what the condition may be of those other men who did not come up for this examination.

The points upon which the examination papers universally agreed were:

The patients are practically always the children of tuberculous parents; are as a class evidently unhealthy; practically all have been subjected to injury of the neck; practically all have abscesses; all the abscesses should be opened; and every case must sooner or later be subjected to an Albee's or a Hibbs' operation.

Now, as a matter of fact, patients with tuberculous caries of the spine are rarely of tuberculous parentage. I do not know the percentages of children having tuberculous bone disease as compared with healthy children among the children of tuberculous parents, but I am strongly of the opinion that not more than one case in ten having tuberculosis of the third cervical vertebra have tuberculous parents.

These children, as a class, do not show any more evidences of privation and general ill health at the onset of the disease than the average.

INJURY AS A CAUSATIVE FACTOR IS RARELY FOUND.

Abscesses are not found in all cases by any means; probably not oftener than once in ten cases, and when they are found they rarely should be opened. I have never seen one case that required opening. About the worst thing a doctor can do to a patient having a tuberculous abscess is to open it.

Albee's or Hibbs' operation for tuberculosis of the third cervical ought not to be a routine treatment in every case. These operations for caries in some part of the spine have been made use of for four years or more. The men who do them usually prefer patients having disease in the dorsal region, and neither operation has been done for cervical caries half a dozen times. For practically all the graduates of the Chicago medical colleges for this year to go out with the conviction that it is the thing for *them* to do in every case is—War!

What are the things necessary to do to make a diagnosis of tuberculosis of the 3d cervical vertebra?

1. To inspect the patient.
2. To note the range of voluntary movement.
3. To feel gently along the tips of the spinous processes for kyphosis.
4. To test the range of passive motion, *very* gently.

Here are some of the things these young doctors are going to do:

1. Make a Calmette, a von Pirquet and a subcutaneous tuberculin test.
2. Test for local tenderness by percussion on the spine and a blow on the top of the head.
3. Make a lumbar puncture.
4. Make an exploratory operation and "make a microscopic section of the excised piece."

Only two or three of the one hundred and fifty candidates knew that the Calmette and von Pirquet tests could not be depended upon for the diagnosis of tuberculosis of the third cervical vertebra, and that the subcutaneous tuberculin test was dangerous. Practically all of these candidates had implicit faith in these tests. Personally I have never used any of them and never shall. They are useless. A doctor who can not make the diagnosis without these tests can not make it with them.

To elicit tenderness at the seat of disease by percussion on the spine or on the top of the head is unnecessary and is harmful. It is the doctor that needs the punch in the neck and the blow on the head—not the child.

To make a lumbar puncture to enable one to make the diagnosis is bad enough, *but* to make an exploratory operation into a tuberculous bone focus in the front part of the body of the third cervical vertebra for the purpose of making a microscopic section is absolutely the limit!

Here are some of the things these candidates expect to find on examination:

1. A spinal deformity, "either kyphosis or lordosis."
2. Compensatory lordosis.
3. Scoliosis.
4. Wasting of the muscles.
5. "Marked wasting."
6. Redness and swelling over the vertebrae.
7. That the patient bends from the hips and holds the lumbar and dorsal spine rigid.
8. An afternoon temperature of 101 or a little less.
9. Local tenderness.
10. Lung involvment.
11. Lumbago.
12. Spondylothesis.
13. "Anesthesia and paresthesia."
14. Abscess in the pharynx, which may rupture into the larynx, or descend into mediastinum, or

anywhere else, and that these abscesses frequently open at the back of the neck.

15. "Psoas abscesses" in the neck.

16. "A yellow mass" on x-ray examination.

The spinal deformity to be seen on examination is really that the neck is bent in some direction and held so; and the distance from the head to the shoulders is lessened. A small kyphosis may possibly be seen, and can often be felt. But there can be no lordosis. And tuberculosis of the third cervical has nothing more to do with scoliosis than it has with bow-legs.

There may be wasting of the muscles; but how can one tell this? What have we as a basis of comparison?

There is never "redness or swelling over the vertebrae."

When the patient bends forwards the movements in the lumbar and dorsal spine, where there is no disease, are free.

There is an elevation of the afternoon temperature in only about half of the patients.

There is never any local tenderness. How could there be when the disease is in the front of the vertebral body, an inch and a half or two inches distant on the other side of the column.

Lung involvement is probably no more frequent in people having disease of the third cervical than in those who have no vertebral disease.

Lumbago has no more to do with the subject than corns. And spondylolisthesis is a slipping forward of the fifth lumbar vertebra on the sacrum—an affair at the other end of the column.

There is no "anesthesia and paresthesia."

It is said in the books that abscesses from diseased cervical vertebrae do protrude into the pharynx, but throughout an active orthopedic practice during thirty-eight years I have never seen one; nor a crevical abscess at the back of the neck, nor descending into the mediastinum or elsewhere than to break in the usual place at the side of the neck. The young doctor who feared one of these abscesses would break into the larynx and drown the patient by filling his lungs need lose no sleep over it.

A "psoas abscess" is called psoas because of its relation to the psoas muscle, which did not use to be in the neck.

Quite a number of these candidates thought the diagnosis of tuberculosis of the third cervical easy; but if I were to do all the things they have mentioned, with examination of the blood and urine, and also the really necessary things, I would call one case a day a full day's work.

Among the many conditions from which these candidates thought tuberculosis of the third cervical vertebra should be differentiated was rickets; and "lordosis due to congenital disease of the hip."

The treatment recommended was also very curious. One recommended "counter irritants"—a relic of the eighteenth century. Others thought that "casts give only partial immobility and are unsatisfactory." Many advised the use of the "jury-mast," which orthopedic surgeons abandoned more than a quarter of a century ago. A few had heard of the Taylor brace, which is by far the apparatus of choice for walking patients, but none seemed to have a clear idea of just what it is. Many mentioned the "Thomas collar," but thought it a device made of stiff leather. Of course a properly constructed stiff leather collar is just as efficient as a Thomas collar; but a properly made leather collar is a very costly device, while a Thomas collar made of sheet iron, felt and sheepskin costs only a couple of dollars. All of them advised the Albee (or Alby) or Hibbs' operation, in all cases, but few had any clear idea of how these operations differ. One would take his bone-graft from the slender fibula, instead of the tibia as is the custom. One knew that a piece of a rib could be used, and one knew of Halsted's operation. Many would remove the diseased bone—they evidently did not really know where the disease was located. One would put a steel plate on the bones and fasten it with screws.

"Buck's extension"—a device for traction on the leg by adhesive plaster for fracture of the femur and hip disease—was advised for tuberculosis of the third cervical vertebra. Another advised a plaster cast by Abbott's method (which is a treatment for scoliosis). Laminectomy was another method of treatment—I wonder why? The use of Beck's paste as a "span" for new bone was a novel suggestion. Almost every one advised "tuberculin treatment," which is useless and harmful.

When a cure resulted in deformity it was advised to use force and tenotomy, (of what?) and follow this with gymnastics; thus doing what little they could to cause a return of the disease. Some of them were of the opinion that para-

plegia could not exist; and others that death came "by paralysis."

Considering all this misinformation, I felt that there was some excuse for what Frank Lydston said to me some twenty years ago: "A medical student ought to be taught only enough to know to whom he should send his patients."

THE MODERN TREATMENT OF OBESITY.

EUGENIA A. MILLER, M. D.
CHICAGO, ILLINOIS.

The importance of electro-therapy is very evident when we find that inventions and discoveries of great value are being made almost daily in this particular branch of therapeutics. It must be remembered, too, that these inventions and discoveries are by no means children of accident, but their creation is due to persistent systematic study, investigation and experimentation by those interested in this special department of the broad field of physical science, and if we would align ourselves with them in their efforts, it becomes our duty to follow with interest and zeal every possibility which they utter and to assist in its elaboration and development.

It is this very reason that impels me to elaborate and develop, in so far as a publication of this sort can, the results of my observations and experimentations with electricity in the treatment of obesity.

In looking over the increasing literature of electro-therapeutics of the last twenty years we are at once met with the fact that since the introduction of the static current and the interrupted current, repeated attempts have been made to apply electricity in the treatment of obesity. The galvanic current has been used because of its ability to change metabolism and for this reason it has been held by some with favor.

Be that as it may, I feel impelled from my own conclusions to give preference to the interrupted current; that current which produces intermittent muscular contractions, for reasons which I shall try to elucidate.

Originally, the static current and the interrupted current were used chiefly for diagnostic purposes, but it wasn't very long when their value in the treatment of muscular weakness and muscle atrophy of trophic origin was recognized.

As early as 1897 Dr. E. C. Schnee of Frankfort recommended the faradic current for the absorption of fat with a four cell bath. But later on Prof. Bergonie of Paris realized that the use of the ordinary faradic current brought equally as good results as the four cell bath; and with less inconvenience. Prof. Weir Mitchell also recognized this fact and endorsed Prof. Bergonie's conclusions.

This current was not looked upon with favor by most scientists of that time, believing that it possessed only a limited amount of energy and along with the inconveniences to operator and painfulness to patient the results obtained were very small and faradism for the treatment of obesity met with defeat.

Prof. Nagelschmidt of Berlin saw the importance of Prof. Bergonie's principle and made endeavors to improve it. As a result his method consisted in the application of the Leduce current, which has the advantage of being less painful because of its anesthetic properties. But it possesses the disadvantage of producing only a limited muscular contraction, and for this reason appears to be inadequate for our purpose.

With the experience of the foregoing men to draw from, together with my own experience, I have come to the conclusion that the condensor current of Prof. Zanietowsky of Krakau, which is recommended by Professors Cluzet, Herman, Dubois, Mann, Kramer, Wertheimer, Solomon and Harvey for diagnostic and therapeutic purposes, is the current most suited for treating obesity.

This current possesses the advantage of producing an intense muscular contraction with the smallest amount of electrical energy; thus producing anesthetic effects. In brief, it overcomes the insufficient stimulus and the painful contractions of the ordinary faradic current.

Several years ago Dr. E. C. Schnee of Frankfort succeeded in perfecting an apparatus with the automatic condensor current known as the Degrassator, which he has so thoroughly outlined in the *Münchener Medizinische Wochenschrift*. This Degrassator possesses the same anesthetic properties as Prof. Nagelschmidt's Leduce current, above referred to, and in addition possesses the very great advantage of causing a far more energetic contraction of the muscles with a minimum output of electrical energy.

It has been said by some authorities that these

condensor discharges of Schnee, because of their suddenness and abruptness, produce a disagreeable sensation in the contracting muscles. This, however, holds good only in single discharges of small capacity. Discharges of greater strength when they follow each other in rhythmical intervals, say, the frequency of the average pulse beat, produce a slight and rather agreeable sensation in the contracting muscles and when continued, produce a calming and sedative effect.

The Degrassator obesity apparatus, according to the principle of Schnee, consists of a switch-table and a couch. The switch-table contains a voltmeter and a milliameter, gauged from five milliamperes (with shunt up) to fifty milliamperes. It is also equipped with two rheostats for regulating the voltage and for controlling three capacities of five, ten and twenty microfarads. By the combined use of these three capacities, 5, 10, 15, 20, 25, 30 and 35 microfarads can be applied.

In addition to these necessary conveniences, the switch-table is supplied with extra switches for single and automatic rhythmical discharges, the number of the latter being regulated by a metronome, supplied for that purpose, which has a range of from forty to two hundred and thirty impulses per minute. It also has a main switch, a current reverser and an incandescent lamp (connected in series with the terminals).

In the couch are four large metal electrodes; two for the back and two for the seat and are made and arranged so that they may be easily detached and sterilized. On the side of the couch are plugs used for the attachment of cables with flexible electrodes. At its head are fifteen small switches where the electrodes are applied to either the positive or negative poles. The electrodes (fifteen in number, including the indifferent electrode), made of Brittany metal, are soft and pliable and can be heated and sterilized.

The patient is placed on the couch and the electrodes above referred to are applied, as the case demands, to the arms, forearms, thighs, legs, breasts and abdomen. Sandbags weighing from ten to twenty kilos are placed on the arms, legs and abdomen in contact with the electrodes for these parts. These bags act as a resistance for the contracting muscles while under stimulation and the weight is increased from time to time in the course of treatment until it has reached about one hundred kilos.

The duration of each treatment varies from ten minutes to sixty minutes. It is advisable, however, to start with only a ten-minute treatment and increase gradually until the sixty-minute limit is reached; all things being favorable for such a prolonged treatment. The number of treatments per week depends upon the condition and inclination of the patient. But as many as two treatments per day can be given without injurious effects. To obtain the best results in this condition under discussion enough treatments should be given to cover a period of from three to eight weeks, and then, if necessary after a period of rest of from two to three months, another course of treatment can be given. The grouping and arranging of treatments in this manner seems to me to be the best mode of procedure.

The effects upon the patient both temporarily and permanently should be the best reason for the existence of this article and I shall endeavor, as well as I can, to point out some of the most important ones.

The anesthetic effect of the condensor discharges permits of the most intense contractions of all of the muscles of the body. These contractions are produced without the power of the will of the patient and consequently no vital energy is wasted. And notwithstanding the fact that the aggregate weight of the sand bags used is from one-hundred to two-hundred pounds, no fatigue is experienced after the treatment.

The stimulation of the vaso-dilators by the electrical current produces, as we know, a dilatation of the peripheral blood vessels, hyperemia of the skin, perspiration and an increase of temperature.

Respiration is stimulated both in frequency and capacity, thus favoring the intake of oxygen and the output of carbon dioxide.

A slightly quickened pulse with a greater amplitude and a sharper dicrotism is without a doubt sufficient proof that the resistance in the vascular system is reduced and a stronger systole and diastole obtains. In many cases a marked increase of the systolic and diastolic blood pressure will be noticed to take place slowly.

All these phenomena disappear very quickly after the application. The stimulation of active physical exercise in any form presents such a symptom complex as we have just enumerated and after the body has become accustomed to the

exertion the prominence of these symptoms is lessened.

And so it is with our patient who is being subjected to the Degrassator discharges. For this is truly as active exercise as any other, but with the advantage of conserving the vital energy. His heart, instead of becoming weakened, as is the case with other methods of treatment, becomes stronger. And after the treatment his muscles respond to the power of the will with such ease and agility that refreshment and comfort as if by magic seem to take the place of fatigue.

This, then, is the temporary effect upon our patient. But what about the permanent effect? I can truly say that it is entirely satisfactory to both physician and patient. To the physician it is a great deal of comfort to be able to be of real service to such patients who suffer from this most distressing malady. And to the patient it should bring extreme joy to be able to have his adiposity converted into real live agile muscle tissue with an active brain, able to do and live in a way that is becoming to a healthful person.

I do not exaggerate when I say that as much as a pound a day can be taken off and even more than two pounds if, in addition to the above treatment, a dietetic regime is adhered to.

After the presentation of the above facts, it would seem but natural and logical for all thinking readers of this article to ask the following question: If electrical treatment accomplishes the same results as active exercise, then why not direct the patient to follow simple rules in calisthenics and dietetics? Let me say in answer to this question that a personal investigation of the kind of treatment referred to will lead to the conclusion that up to the present time it has proved impractical in the majority of cases. And there are reasons for this. 1. The condition of the heart in the majority of these cases would not permit the required amount of exercise for the desired results. 2. If such exercises were possible, most patients after the effort would be inclined to and do partake of food and drink, thus defeating our purpose. 3. And most important of all is the lack of necessary courage and perseverance for such a task. Thus we are compelled by way of necessity to search for something which will overcome these difficulties and to render satisfactory results in the least possible time in the best possible way; for this is one of the reasons why I have presented the above method.

No doubt exists in my mind that if the patient can be subjected to this form of involuntary muscular work, thoroughly and carefully, the fat which is stored up in the tissue as a reserve must necessarily become absorbed and eliminated. This work, together with a diet poor in carbohydrates (which does not necessarily mean the reduction of the quantity of food taken) should lead to no other but desirable results.

But it should be carefully borne in mind that the loss of weight at the end of a given number of treatments is not in proportion to the amount of fat removed. That is, the number of pounds of fat eliminated is greater than the number of pounds of total weight lost; since there is an increase in the amount of muscle tissue. And as further proof of the transformation of a patient's signs of flabbiness to athletic sinuosity, the loss in girth measurement is far greater than the proportionate loss of weight.

The patient is actually transformed from a dull, flabby and listless individual to a robust, athletic and active personality. His expression, instead of being lethargic, becomes bright and his eyes have a twinkle of wakefulness.

This, then, is but one condition wherein we have found the successful application of electricity. But what about its application in other conditions? Its use in muscular weakness and atrophies, weakness of the heart muscle, chronic constipation, diabetes mellitus, etc., has met with as great success as in obesity. At some future time I hope I may have the opportunity to present my experiences with the Degrassator discharges in the various conditions just enumerated.

In conclusion, I wish to say that the subject thus presented should at least impel you to an honest investigation. For I feel that this subject possesses unlimited possibilities both as to its present application and to its future evolution. And if I have done nothing more by presenting my experience in this line than to arouse those interested in this branch of science to at least an unbiased attention sufficient to discover the merits of this treatment, I shall feel that my efforts have not been in vain.

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JUNE, 1916

Editorials

ANNUAL MEETING.

Another mile post in the history of the Illinois State Medical Society has slipped by, and the Annual Meeting at Champaign is added to the list of memories.

The attendance was not as large as it should have been, but compared favorably with that of other years. It should have been the largest in the history of the Society. The program was exceptionally good, and proved unusually interesting, as demonstrated by the full attendance in the various sections. The halls of the Masonic Temple of Champaign were ideal for assembly rooms. It will be a long time before the Society will have a better convention hall in which to hold its annual meeting.

The Society is to be congratulated upon choosing Dr. E. B. Cooley of Danville as president-elect. We think no better choice could have been made. With Dr. W. L. Noble as president this year and Dr. Cooley following as president the next year, the Society is assured of excellent leadership for the two years, and cannot help but progress. We predict that the Illinois State Medical Society will give an account of itself during these administrations.

The fraternity of Champaign did all that was possible to entertain the Society, and if one judges from expressions overheard, it was highly successful in its effort.

Bloomington again extended an invitation for the Society to meet in that city next year and the invitation was accepted.

THE ALIENISTS AND NEUROLOGISTS.

The fifth annual meeting of Alienists and Neurologists of the United States, under the auspices of the Chicago Medical Society, for the discussion of Mental Diseases in their various phases, will be held June 19 to 23, 1916, at Hotel La Salle.

The program covers over eighty contributions or papers, is scientific and educational to the general practitioner as well as to the specialist engaged in this particular line of work. The subject of lues alone is to be discussed in such up-to-date manner, especially as to diagnosis and treatment, that it will repay any one in general practice to avail himself of the opportunity to hear the papers and discussions on this subject.

The symposium on what constitutes a modern hospital for the insane, is a subject that should interest all, both from an economic and humanitarian standpoint. There are thirty or more individuals to speak of the various subjects from different standpoints, concerning a modern hospital.

It is to be hoped that the physicians throughout the state will avail themselves of this opportunity to get better acquainted with mental diseases, the diagnosis, care and treatment of this class of patients.

The program appears in Society Proceedings.

DOCTOR RIDLON'S ARTICLE.

On another page Dr. Ridlon has expressed a "righteous indignation" because of poor examination papers handed in by one hundred and fifty

applicants for interneship in Cook County Hospital.

We do not for a moment question the doctor's statements as to the replies given to the stated question, but we do not believe his criticisms are aimed in just the right direction. The last statement of his paper, which he credits to another member of our Society, indicates the inability of the student. If one student had shown such a woeful lack of knowledge, we would think the student had not applied himself during his college course, or was not capable. If ten or any other number of students coming from one school showed a marked lack of knowledge, we would naturally question the standing of that particular school. But these are "the choice men of their classes" and come from many medical colleges. They are answering these questions as they have been taught, or (and here is where the trouble lies), they have not been taught efficiently, and are merely guessing. If they do not know, why shouldn't they guess? They may hit the mark, or come close, while if they do not reply at all a zero mark is drawn.

It would be interesting to ask one hundred and fifty practicing physicians how many cases of tuberculosis of the third cervical vertebra they saw in the clinics while they were students. Ask these same one hundred and fifty physicians how many operations for cancer of the stomach or bowel, or any other major operation they had witnessed during the same college course.

As long as the majority of the teachers in medical colleges are practicing physicians and surgeons, and they are teaching largely as a means of becoming well and favorably known through their clinics, and thus enlarging their practice, better results in teaching may not be looked for.

Orthopedic surgery is not the only neglected subject in the curricula of all the medical colleges. What of materia medica, of therapeutics, of physiology? How many students on graduation know how to properly examine a patient? What of physical diagnosis, and so on? Would it not be well to insist on all medical colleges giving one or two years hospital work in their courses?

These men may not know tuberculosis of the cervical spine when they begin their interneships, for they have not been taught to know it nor have they seen it, but they should know it when they conclude their hospital service. It sometimes looks to us that perhaps the medical schools are following the teaching of that last statement of Doctor Ridlon's paper, and after all we are not so inclined to berate the student.

PREVENTION OF BLINDNESS.

The most unfortunate condition which may afflict humanity is blindness. Occurring, as much of it does in childhood, it is a calamity beyond description. Terrible as is the calamity to the sightless victims, it is also unfortunate for society, for the majority of the blind become dependent upon society for their care and support. None of us ever refuses to help the blind when opportunity presents itself, but do we do as much as we could to prevent it? It is charitable to help the blind, but how much more charitable and how much more beneficial would it be to prevent it?

There is no doubt that much of the blindness, and the misery attendant thereto, could be prevented if proper means were used at the proper time. Dr. C. St. Clair Drake, secretary of the State Board of Health, has been doing excellent work along this line, and to him mostly must be given credit for the law requiring the reporting of these cases.

The American Medical Association began several years ago through a subcommittee of the council a propaganda looking toward the conservation of vision, and its work has encouraged both physicians and ophthalmological societies to work more earnestly for the prevention of blindness.

We would call the attention of our members to the new law entitled, "An Act for the Prevention of Blindness from Ophthalmia Neonatorum, etc.," in force since July 1, 1915. The mandatory portion of the law, as it relates to physicians, is as follows:

Section 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That any diseased condition of the eye, or eyes of any infant in which there is any inflammation, swelling or redness in either one or both eyes of any such infant, either apart from or together, with any unnatural discharge from the eye, or eyes of such infant, at any time within two weeks after the birth of such infant, shall, independent of the nature of the infection, be known as ophthalmia neonatorum.

Sec. 2. It shall be the duty of any physician, surgeon, obstetrician, midwife, nurse, maternity home

or hospital of any nature, or parent, assisting in any way whatsoever, any woman at childbirth, or assisting in any way whatsoever, any infant, or the mother of any infant, at any time within two weeks after childbirth, observing or having a reasonable opportunity to observe the condition herein defined, and within six hours thereafter, to report in writing or by telephone followed by a written report, such fact to the local health authorities of the city, town, village or other political division, as the case may be, in which the mother of any such infant may reside: *Provided*, that such reports and the records thereof shall be deemed privileged information and shall not be open to the public.

Sec. 3. It shall be the duty of all maternity homes and any and all hospitals or places where women resort for purposes of childbirth, to post and keep posted in conspicuous places in their institutions, copies of this Act, and to instruct persons professionally employed in such homes, hospitals and places regarding their duties under this Act, and to maintain such records of cases of ophthalmia neonatorum in the manner and form prescribed by the State Board of Health.

It shall be the duty of any and all physicians, and midwives to advise, for the prevention of ophthalmia neonatorum, such prophylactic as shall be prescribed by the State Board of Health, and to inform the parents or guardians of a child as to the dangers and dire consequences of this disease. For the purpose of preventing the development of ophthalmia neonatorum in cases of childbirth attended by midwives, midwives may employ the prophylactic prescribed by the State Board of Health, provided the consent of the parent or parents or guardian shall first be obtained for the use of such preventive treatment.

We would urge all doctors to be very prompt in reporting all cases of ophthalmia neonatorum, and to do all in their power, regardless of other circumstances, to prevent the blindness which may follow this condition.

THE A. M. A. MEETING.

The sixty-seventh annual session of the American Medical Association at Detroit, June 12-16, should attract an unusually large attendance. While not in the same class with Chicago as a convention city, Detroit's central location and many attractions will appeal to the profession of all the central states. The opportunity to combine a delightful lake trip from Chicago on the *South American* will be a novelty pleasing in itself and it will also relieve the hotel congestion unavoidable on such occasions, as it is proposed to give guests the use of the staterooms and serve breakfasts on the boat during the meeting. The fare for the trip one way is $30.

The scientific programs of the sections are fully up to the high standard of former meetings. The Illinois State Medical Society will be represented in the House of Delegates by Drs. Charles J. Whalen, Charles E. Humiston, H. N. McKechnie, A. M. Harvey and J. C. Krafft of Chicago, Chas. W. Lillie of E. St. Louis, J. M. Pfeiffenberger of Alton, R. S. Denney of Aurora and Thos. O. Freeman of Mattoon.

NOTICE—RUSH ALUMNI REUNION.

There will be a grand reunion of the members of the Rush Medical College Alumni Association during the coming meeting of the American Medical Association at Detroit, Michigan on June 13, 1916, at the Hotel Tuller, roof garden, 8:00 p. m. A smoker, buffet luncheon and songs, merriment, class reunions will be the main features.

When you register your attendance at the American Medical Association meeting do not overlook that notice calling your attention to the Rush Alumni reunion. Make an earnest effort to be there and meet the members of your class. They are all anxious to see you and we all want to meet you there. Help us to make this the annual meeting of our Association jointly with meeting of the American Medical Association a rousing success.

HOTEL ACCOMMODATIONS AT DETROIT.

We are reliably informed that at this date it is impossible and has been for two weeks, to secure hotel accommodations at Detroit during the week of the meeting of the A. M. A. We make this announcement merely to warn our members of the hotel situation there, so they may be prepared.

We would advise all our members who contemplate going to write Mr. Paul Tice, 33 East High street, Detroit, to arrange some place for sleeping quarters, and especially to do this if they intend taking their families. This situation is unfortunate, but the Society is so large, and the attendance so great, that it becomes an impossibility for any except the largest cities to furnish adequate hotel accommodations for this association.

OUTING AT STARVED ROCK.

The physicians of the northern part of the state have been making an effort to have a Physicians' day (social get-together meeting) at Starved

Rock some time this summer. At the Champaign meeting Dr. E. J. Sloan of Bloomington, E. W. Weis of Ottawa, and E. E. Perisho of Streator, were appointed as a committee to make necessary arrangements. July 12th has been chosen as the day for this gathering, and the committee has made arrangements with the Starved Rock hotel to care for the doctors at that time.

This trip will afford an excellent opportunity for the doctors with their families to have a two or three days' outing, to meet their medical associates, and at the same time see one of the beauty spots of Illinois.

The committee will arrange a social program for the day, and it is hoped that a large number of doctors will attend. Every doctor in Illinois with his family is invited.

SENATE'S ACT IS MENACE TO CITY'S HEALTH.

Votes to Cut Flow of the Drainage Canal to 250,000 Cubic Feet.

Washington, D. C., May 29.—(Special.)—While both Illinois senators were away from Washington today Senator La Follette of Wisconsin worked an amendment into the river and harbor bill which, if enacted into law, not only may kill the Dunne waterway plan altogether, but also restrict the right of the Chicago drainage trustees to take more than 250,000 cubic feet of water a minute from Lake Michigan.

The sanitary canal now uses approximately twice that amount of water to carry the sewage of the city down the river and away from the lake water, which is thus maintained in purity for the use of the people.

To cut the flow to 250,000 cubic feet a minute would be a vital menace to health in Chicago and its suburbs. —*The Chicago Tribune.*

It would seem that the Senators from Illinois have "had something put over them." We scarcely believe there will be federal laws passed which will jeopardize the health of Chicago and vicinity. It would reflect upon the body that passed such laws. Nevertheless the medical fraternity should be on guard and ready to enter protest against any measure which may deleteriously affect the health of the commonwealth.

We believe the time has come when the health authorities should do more to prevent contamination of all lakes and rivers. It is imperative that the water in all lakes be kept free from contamination. In Illinois practically all of the lakes are used as pleasure resorts. They are the playground of the people, and it is unfortunate indeed that those using the lakes must be endangered by the pollution of sewage from nearby towns. The lakes of Illinois, Wisconsin and Michigan have played an important part in the health of these commonwealths, and regardless of all other consideration, must be kept free from lurking danger from sewers and other drainage.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon General of the Army announces that preliminary examinations for the appointment of First Lieutenants in the Army Medical Corps will be held on July 17, 1916, and August 14, 1916, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received in order to lessen the traveling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the Adjutant General at least three weeks before the date of examination. There will be more than one hundred vacancies to be filled after July 1st, when the bill for the reorganization of the army becomes a law.

TUBERCULOSIS NOTES.

The Tb. Problem.—The fact that the anti-Tb. campaign has not brought results as favorable as might have been expected is due to the slogan "Tb. is an infectious disease," which overlooks the fact that the disease is acquired in childhood and its manifestation in the adult is only a light-up process. Isolation of all persons with tubercle bacilli in the sputum would be effective prevention, but this cannot be attained. Hence, the only hope lies in childhood prophylaxis. Since tbc. infection occurs in early childhood, and perhaps in utero, all attempts at prophylaxis are in reality therapeutic. Dr. Karl von Ruck has prepared a vaccine consisting of the watery extracts of the tubercle bacillus which has been given by repeated injection to young children, until their serum shows bactericidal power against the bacillus. The children gain in weight and appetite and do not develop active Tb. The largest number of experiments have been carried out on animals, using some as controls. In the case of animals, some failures were observed, and these have

been explained by the existence in the animals of a pseudo-tb. which interferes with the experiment. The vaccine has also been administered to cattle with good results, and this may later solve the problem of the tbc. cow.—*The Tb. Problem, S. H. von Ruck, Lancet-Clinic, Sept., 1915.*

The lack of increased temperature does not exclude incipient tuberculosis, although usually present.

Every endeavor should be made to prevent secondary infections, as these may make of a favorable case an unfavorable one. All foci from which such infections begin, as nose, throat or teeth, should be attended to. Visitors with acute infections should not be allowed to come in contact.

In the use of tuberculin adhere as closely as possible to one particular kind. Its action can be better judged than if several kinds are used.

Anemia furnishes a fruitful ground for the development of tuberculosis.

Tuberculin is a most valuable aid in the treatment of surgical tubercular conditions. The usual surgical and orthopedic measures, however, must not be neglected.

Hasty Diagnosis.—About 80 per cent. of cases classed as incipient in German sanatoria have been found to be not sick at all or as suffering from some other disease and fit to be sent to the front. The belief that any case of Tb. discovered early will be cured is wrong. There are cases which are malignant from the beginning, and which are not affected by any form of treatment. On the other hand, in slowly progressing, chronic cases there is no reason for hurry in the making of a diagnosis, since the patient will not be harmed much by waiting a few weeks. For dependent consumptives sanatorium accommodation is scarce; they have to wait for admission, whether the diagnosis is clear or not. By haste in diagnosis many non-tbc. cases gain admission to sanatoria, thus depriving tbc. cases of accommodation. Doubtful cases should be kept under observation for a number of weeks, while they are allowed to continue at their work. They may be told that they have no Tb., but that they are threatened with it. Phthisis consists of a number of acute or subacute attacks with intervening periods of quiescence. Treatment aims at rendering the periods of quiescence longer. Most cases of incipient Tb., such as gain admission to sanatoria at present, are spontaneously cured or arrested. It is the active cases which should be admitted. Sanatoria will not fulfill their purpose until this plan is adopted. A hasty diagnosis of Tb. may prove more disastrous than neglect to diagnose an active and progressive case.—*Hasty diagnosis of pulmonary Tb., M. Fishberg, Med. Record, Jan., 22, 1916.*

Stain for Tubercle Bacilli.—1. Three per cent. alcoholic solution of crystal violet.

2. One per cent. aqueous solution of ammonium carbonate.

3. Ten per cent. solution of nitric acid (C. P.).

4. Ninety-five per cent. alcohol.

5. Saturated alcoholic solution of Bismarck brown, of which enough is added to water to make a tincture of iodine color.

Technic.—Make smear or prepare urinary sediment as usual. Mix one part of 1 with three parts of 2. Add this solution to smear, bring to steaming-point, and cool three successive times. Pour off excess of stain and wash in tap water. Rinse with 3 and 4 alternately until the specimen is colorless. It is not necessary to wash. Add solution 5 to three minutes. Dry, add cedar-oil, and examine with immersion lens.

The tubercle bacilli stain a pretty violet with a light brown, almost yellow background, and are much more easily found when using this stain than with any other. It can be used for urinary sediment as well as for sputum and for tissues.—*A stain for tubercle bacilli, E. Klein, N. Y. Med Jour., Jan. 29, 1916.*

Public Health

CAN WOMEN VOTE ON THE COUNTY TUBERCULOSIS SANITARIUM PROPOSITION?

In a number of Illinois counties, at the fall election of this year, the voters will be called upon to determine whether or not tuberculosis sanatoria shall be established. Incidentally, under the law, these county institutions, if established, will be known as "sanitaria."

The Glackin law, passed by the forty-ninth general assembly, is very sweeping in its provisions. It permits not only the establishment and operation of free tuberculosis sanitaria in all counties, but the employment of visiting nurses, the care of patients in their homes, the maintenance of free dispensaries and such other activities in the warfare against tuberculosis as the board of directors of the sanitarium may deem advisable.

One of the most active champions of the law and of its adoption by the various counties has been the State Federation of Women's Clubs and it has been expected that the women's vote would help very materially in the passage of the measure in various localities this fall.

In an opinion recently submitted by the attorney-general to the State Board of Health, the right of women to vote on this proposition depends entirely upon local conditions, so that while women may vote on the measure in some counties, in others they will not be permitted to do so.

The gist of the attorney-general's opinion is that, in case the three mill tax considered in the county tuberculosis sanitarium proposition does not cause the total county tax to exceed the constitutional seventy-five cents, women will be permitted to vote; but, in case the county tax already exceeds the constitutional seventy-five cents or is made to exceed it by the addition of the three mill tax for sanitarium purposes, women will not be permitted to vote.

Thus, depending entirely upon local conditions, women may be permitted to vote in some of the

counties of the state, while in others they will not be permitted to vote.

DRUGLESS PRACTITIONERS AND DEATH AND BIRTH CERTIFICATES.

In an opinion recently submitted by the attorney-general to the State Board of Health, it is held that osteopaths and other practitioners licensed to treat human ailments without the internal or external use of drugs or the employment of operative surgery, may sign death certificates under the provisions of the existing birth and death act. Incidentally, according to this opinion, they would have had the same right under the former act had the question ever been raised.

In signing death certificates, however, the attorney-general holds that the "other practitioners" cannot sign as physicians, but must designate the form of practice they follow and in virtue of which they are licensed, such as "osteopath," "chiropractor," etc.

In rendering his opinion the attorney-general holds that a liberal construction of the medical practice act, in which drugless practitioners are authorized to treat human ills, qualifies the drugless practitioner as a "physician" for the purposes of the birth and death act. Reference is made to a decision in the higher courts of New York, in which it was held that the term "attending physician," appearing in an insurance policy, would include the osteopathic practitioner who cared for the policyholder, although that practitioner was not permitted to designate himself as a "physician" in his advertising or otherwise.

Hence, the attorney-general holds that this liberal interpretation does not in any way invalidate that section of the medical practice act which prohibits "other practitioners" using the term physician in their printed matter. That section of the law, according to the attorney-general, was intended to protect the public by advising them of the character or limitations of the various practitioners.

It is also held, in this opinion, that midwives are not permitted to sign death certificates and that "other practitioners" are not authorized to sign birth certificates. The only condition under which an "other practitioner" may sign a birth certificate is that he be also licensed as a midwife, in which case he must sign the birth certificate as a midwife and neither as a physician or as an "other practitioner."

This decision settles questions, which for some time past have occasioned misunderstandings in the minds of local health officers and local registrars of vital statistics.

STATE DISTRICT HEALTH OFFICERS APPOINTED.

In furtherance of the reorganization of the State Health Department, the following civil service appointments have been made during May to important posts in the State Board of Health:

State epidemiologist, Dr. Edward S. Godfrey.

District health officer for the west state district, Dr. Clarence East, with headquarters at Galesburg.

Chief dairy inspector, Mr. Paul L. Skoog.

NEW STATE LABORATORY.

An important increase in the facilities of the State Diagnostic Laboratory Service was made during May by the opening of East State Laboratory at Champaign. This laboratory, under the direction of Dr. Sperry, will serve a tier of twenty counties in the eastern border of the state. With the central laboratory at Springfield, the northern state laboratory at Chicago and the south state laboratory at Mount Vernon, the service is made infinitely more effective for the health officers and physicians of the state.

SUMMER RESORT INSPECTION.

The annual harvest of typhoid fever, due to the summer vacation visits of city dwellers to insanitary summer resorts, has led to the establishment of a system of resort inspection throughout Illinois. This inspection is now under way and will be practically completed before the hot months of summer.

Notices are being served on resort owners to correct insanitary conditions and to provide reasonable safeguards for the public health. In some instances it was found that the sewage of resort hotels was discharged into nearby lakes, the sewer outlet being at times in immediate proximity to established bathing beaches.

After June 20 the sanitary status of any Illinois summer resort may be ascertained upon application to the State Board of Health and physicians will do well to advise their patients not to patronize resorts without first ascertaining the existing sanitary or insanitary conditions.

NEW EDITION OF STATE BABY CIRCULAR.

The popular booklet, "Our Babies—How to Keep Them Well and Happy," issued by the State Board of Health and which has already run through two large editions, has been thoroughly revised and edited and has appeared in a new edition of 50,000 copies. This circular can be obtained upon request made upon the secretary of the board at Springfield.

COMMUNICABLE DISEASES DURING MAY.

Within the past few months the physicians and health officers have fallen in with the new provisions for the reporting of communicable diseases to a most gratifying extent. In fact, the thoroughness with which reports are now being made leads to some confusion and misunderstanding in interpreting the number of cases on record. Careful investigation by the district health officers leads to the conclusion that preventable diseases are not unusually prevalent and yet the reports are so general that, were this not taken into consideration, one would assume that Illinois is undergoing a general epidemic of contagious disease.

Skeptical as we usually are of new things, the physicians and health officers and all others interested in the prevention and suppression of contagious diseases in the state are expressing themselves as in hearty sympathy with the present rules and regulations concerning such diseases. The reporting of measles, whooping cough and chickenpox is an entire innovation in Illinois, and yet this innovation is meeting with general approval of physicians and general commendation on the part of health officers.

Scarlet fever and smallpox have prevailed in a very mild form, many of the patients having no medical care and the cases, consequently, remaining unrecognized and unreported.

In Decatur ten cases of smallpox were reported during May, as compared with fourteeen cases in April. In Danyille there were eight cases in May, as compared with ten during April. In Dundee fourteen cases of smallpox were reported during May. In Peoria there were twenty-five cases of smallpox during May and in Springfield forty-nine cases.

The general prevalence of measles, noted throughout the state during the past few months, has somewhat subsided. The disease still prevails to an unusual extent at Canton, Galesburg, Waukegan, Quincy, Chicago, Galena, Griggsville, Joliet Township, Rockford and Springfield.

Toluca and East St. Louis report cases of cerebrospinal meningitis and Decatur reports three cases of poliomyelitis.

In Pana there have been thirty-nine cases of typhoid fever, the source of which seems to have been an infected milk supply. A special laboratory was established in Pana by the State Board of Health and the principal of the high school and a number of high school students were enlisted as laboratory assistants. An active educational campaign was carried on with the assistance of the local press.

Fifteeen cases of typhoid fever at Tuscola were attributed to a well situated in a livery stable and which was very popular on account of the "fine quality" of the water. The "fine flavor" of the water of this well brings to mind the many instances of "mineral wells" which have come into high favor until it was ascertained that the mineral taste was due to just about such things as one would expect to find in a livery stable well.

DO YOU KNOW THAT

Rural sanitation is a health protection to the city-dweller?

It's foolish to educate a boy and then let him die of typhoid fever?

The U. S. Public Health Service issues a free bulletin on the summer care of infants?

Exercise in the garden is better than exercise in the gymnasium?

Clean water, clean food, clean houses make clean healthy American citizens?

The State of California has reduced its typhoid death rate 70 per cent. in the past ten years?

Rats are the most expensive animals which man maintains?

It is estimated that the average manure pile will breed 900,000 flies per ton?

DO YO UKNOW THAT

Efficient muzzling of dogs will eradicate rabies?

The protection of the health of children is the first duty of the Nation?

Bad temper is sometimes merely a symptom of bad health?

Insanity costs every inhabitant in the United States $1 per year?

The U. S. Public Health Service has proven that typhus is spread by lice?

Untreated pellagra ends in insanity?

In the lexicon of health there is no much word as "neutrality" against disease?

The death rate of persons under 45 is decreasing; of those over 45 it is increasing?

DO YOU KNOW THAT

Today is always the best day to clean up?

Fresh air, food, rest—these three combat tuberculosis?

The U. S. Public Health Service has reduced typhoid fever 80 per cent. in some communities?

Overeating, constipation, lack of exercise, foul air, eye strain, may produce headache?

Polluted drinking water causes many deaths?

An efficient health officer is a good community investment?

Bad teeth, handicap children?

Insufficient sleep endangers health?

DO YOU KNOW THAT

Light promotes cleanliness?

A clean mouth is essential to good health?

Physical training in childhood is the foundation of adult health?

The U. S. Public Health Service issues publications on hygiene and sanitation for free distribution?

Isolation is the most efficient means of controlling leprosy?

Headache is Nature's warning that the human machine is running badly?

Bullets may kill thousands—flies tens of thousands.

Obesity menaces longevity?

DO YOU KNOW THAT

Life is a constant struggle against death?

Dirty refrigerators may make sickness?

The U. S. Public Health Service issues free bulletins on rural sanitation?

The defective citizen of today is ofttimes the unhealthy child of yesterday?

Every man is the architect of his own health?

It's the baby that lives that counts?

Tuberculosis is contagious, preventable, curable?

The full dinner pail—the open window—the clean well—make for health?

Auto Sparks and Kicks

LIGHTER COLORS ARE MOST EFFICIENT FOR CARS.

By M. C. Hillick.

The Automobile has consistently and with convincing logic set forth, in past issues, the drawbacks and disadvantages of the blacks and blues and greens, the two latter of the deepest shade, as colors for use upon automobiles. These pigments, it must be conceded, are, at the outset of their career on the surface of the car, and when given the full radiance of a fine fabric of varnish, exceedingly beautiful to behold, and if they could be made to wear on with the same magnificent effects, and at the minimum outlay of cleaning processes be maintained at a high rate of efficiency under the stress of everyday service, their value and usefulness would pass unquestioned. Unfortunately this is not the case, and wherever these colors are found doing service on the average American highway, there you may expect to find difficulty in keeping them clean and neat, and showing a reasonable amount of luster. Moreover, they are colors ground in japan, and therefore afflicted with a brittleness which under severe road and garage treatment is certain to suffer. They will, of course, give a better account of themselves if kept well protected under an ample supply of varnish, but in the face of all that may be done for them—speaking now of the colors used upon the cars exposed to the conditions of the average country and village highway—the tendency is to show a dingy, unkempt, and generally unsatisfactory appearance.

Must Consider Conditions.—The exception to this rule is the color used upon the car employed for service upon city pavements, where the conditions of service are of a modified order, as compared to those encountered in the rural districts. These black, deep blue and green colors require a dressing-up with some of the ornamental embroidery of relief colors to take them from under the funereal aspects which such field colors always invite. In other words, they require an artificial stimulation to keep them in presentable condition for even a temporary show.

In respect to the employment of lighter colors, such, for example, as maroon, some of the browns, the grays, creams, wine and the lakes. These colors, some of them also ground in japan, have the important advantage of being comparatively easy to clean up and to be kept clean. Also, they retain their brilliancy of effect to the maximum limit. *They show dirt less* than darker colors, and respond to the cleaning operations quicker. They render service in proportion to the attention bestowed upon them, but at the same time they flourish under neglect and display color effects that would make the darker pigments look like a vain show. *The grays, and the creams, and lighter yellows, all are permanent pigments by virtue of the ingredients composing them, white lead being an important one,* and a basic feature of the greatest value as a surfacing medium. Such a pigment, naturally supple and elastic, imparts to the color a surfacing property, a density of fiber and film, and an elasticity quite unsurpassed, and explains the tenacity and the durability which characterize these pigments with a pronounced lead base. Give these colors a proper fabric of varnish, and a decent measure of care taken, including proper washing processes, and the service they will render cannot fail to equal that of the very best pigments.

Stand Washing Well.—Practically all these colors stand washing and cleaning operations excellently, which may be accepted as evidence of their durability and strength of film. Likewise, they show road dirt and the accumulations of the highway less than the dark colors. They require less of the ornamental effects to bring them into notice, the field color being capable of making an impression without the aid of any ornamental lines, although, of course, these lines serve to lighten the effect and bring into greater relief the true and distinctive character of the field color.

White Lead Gives Elasticity.—All colors having a portion of white lead in their composition may be accepted as pigments of an elastic nature, and capable, under reasonable conditions, of giving a masterful measure of durability, at the least possible outlay on cleaning and renovating. The black and the darker colors referred to fail in the capacity to stand the renovating processes without detriment, especially when the protection of varnish has become of no effect, whereas the lighter colors bear these erosives with fewer indications of injury to their luster and general appearance. In making choice of color for the car, its class of service may well govern the selection. —*The Automobile.*

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY.

C. J. Whalen, M. D., president; A. A. O'Neill, M. D., president-elect; C. E. Humiston, M. D., secretary; J. S. Nagel, M. D., treasurer.

FIFTH MEETING OF ALIENISTS AND NEUROLOGISTS.

FOR THE DISCUSSION OF MENTAL DISEASES IN THEIR VARIOUS PHASES.

June 19 to 23, 1916.

Headquarters, La Salle Hotel,

Meetings and Social Sessions held at this Hotel.
Wm. O. Krohn, Chairman; W. T. Mefford, Secretary.

Monday Morning, 9 a. m., June 19, 1916.

Address by the Chairman, Dr. Wm. O. Krohn, Chicago.

Welcome address by the President of Chicago Medical Society, Dr. A. A. O'Neill, Chicago.

Address: Judge Harry Olson, Chief Justice Municipal Court, Chicago.

Trends and Instincts in the human life; their influences upon Mental Integrity, Dr. Edward Mayer, Pittsburgh, Pa.

Will Physiological Chemistry Solve the Etiology of Idiopathic Mental Diseases? Dr. Moreland Owensby, Baltimore, Md.

Heredity as a Cause of Mental Disease, Dr. A. J. Rosanoff, Long Island, N. Y.

The Dynamics of Life, Dr. T. Burrow, Baltimore, Md.

Monday Afternoon, 2 p. m, June 19, 1916.

The Question of the Recoverability of Dementia Præcox, Dr. Theo. Diller, Pittsburgh, Pa.

Adrenalin Mydriasis as a Differential Diagnostic Sign in Dementia Præcox, Drs. Ralph M. Chamber and Solomon Fuller, Westboro, Mass.

Recent Studies in Dementia Præcox, Dr. Bayard Holmes, Sr., Chicago, Ill.

Alcohol and Its Relation to Epilepsy and Allied Convulsive Disorders, Dr. D. A. Thom, Palmer, Mass.

Alcohol Acidemia, Dr. Samuel Stern, Atlantic City, N. J.

The Time Element in the Treatment of Drug and Alcoholic Addictions, Dr. C. B. Pearson, Arlington, Md.

Alcoholic Psychosis; Points in Differential Diagnosis, Dr. M. C. Hawley, Elgin, Ill.

Problem of the Drug Addicts, Dr. H. J. Cahagan, Elgin, Ill.

Infantile Dementia in Syphilitic Children, Dr. Archibald Church, Chicago.

Tuesday Morning, 9 a. m., June 20, 1916.

A State Campaign Against Syphilis, Dr. W. F. Lorenz, Mendota, Wis. Discussion by Dr. W. A. Evans, Chicago; Dr. John Dill Robertson, Health Commissioner, Chicago, and Dr. St. Clair Drake, Secretary, State Board of Health.

Report of a Case of Juvenile General Paresis, Dr. Fred C. Potter, Indianapolis, Ind. Discussion by Dr. H. F. Leonard, Lincoln, Ill., and Dr. Grulee, Chicago.

Various Conditions Otherwise Diagnosed Which Ultimately Proved to Be Syphilitic, Dr. Edward F. Leonard, Chicago, Ill.

Clinical and Pathological Report of a Case Resembling Multiple Sclerosis, with Findings of Syphilis, Dr. Lawson G. Lowrey, Hawthorne, Mass.

Combined Sclerosis and General Peresis; with a Discussion on the Similiarity of Certain Changes in the Paretic Cortex to the Characteristic Lesions of Multiple Sclerosis, Dr. Solomon Fuller, Westboro, Mass. Discussion by Dr. Harold N. Moyer, Chicago, and Dr. Wm. Pusey, Chicago.

Treatment of Cerebro Spinal Syphilis, Dr. Chas. D. Humes, Indianapolis, Ind. Discussion by Dr. G. Wilse Robinson, Kansas City, Mo.; Dr. Wm. Pusey, Chicago; Dr. Oliver Ormsby, Chicago, and Dr. Louis D. Smith, Chicago.

Treatment of Paresis by the Intraventricular Route, Dr. C. F. Read, Watertown State Hospital, East Moline, Ill. Discussion by Dr. Henry A. Cotton, Trenton, N. J.

Intraspinal Mercurial Treatment, Dr. Geo. W. Hall, Chicago.

Dr. M. N. Voldeng, (title to be announced later).

Tuesday Afternoon, 2 p. m., June 20, 1916.

Posteoperative Psychoses, with Case Report, Dr. Wm. Lee Secor, Kerville, Tex.

The Essential Nature and Treatment of Psychosthenia, Dr. Geo. E. Price, Philadelphia, Pa.

Incipiency Psychoses, Dr. E. H. Moody, Moody's Sanitarium, San Antonio, Tex.

Postoperative Psychoses in the Female, Dr. Chas. Frischbier, Brooklyn, N. Y.

Report of a Case of Psychasthenia; Analysis and Cure, Dr. Meyer Solomon, Chicago, Ill.

Moral Insanity, Dr. E. L. Parker, Excelsior Springs, Mo.

The Influence of Environment and Personality Upon Delusions, Dr. Chas. Ricksher, Kankakee, Ill.

Wednesday Morning, 9 a. m., June 21, 1916.

A MODERN HOSPITAL FOR THE INSANE.

Committee: Mr. A. L. Bowen, Secretary, State Board of Charities, State of Illinois, chairman; Mr. A. W. Butler, State Board of Charities, Indianapolis, Ind.; Katherine Williams, St. Paul, Minn.

The Problem of the Budget, Dr. Harold N. Moyer, Chicago.

From the Standpoint of Architecture and Plans:

Plumbing, heating, toilet facilities, floors for water sections, day rooms and dormitories, light, heat and ventilation, Richard E. Schmidt, Garden and Martins, architects. Discussions by Herbert Foltz, architect, Indianapolis, Ind.; Jerry L. Sweet, architect, Majestic building, Milwaukee, Wis., and Frank E. Baker, manager, Hospital Department, for J. B. Clow & Sons, Chicago.

The One-Story Cottage, Dr. W. C. Van Nuys, New Castle, Ind.

The Colony Idea, Dr. S. E. Smith, Richmond, Ind.

From Standpoint of Patients:

Mechanical restraint, seclusion, open wards, parole, Dr. H. P. Sights, Hopkinsville, Ky.

Employment and Recreation, Dr. Carl W. Sawyer, Marion, O.

Diet and Dining-room Service, Dr. Chas. Pitcher, Kings Park, L. I.

Bathing and Toliet Facilities, Dr. H. J. Gahagan, Elgin, Ill.

Clothing and Methods of Manufacture, Dr. Starr Cadwallader, Cleveland, O.

Wednesday Afternoon, 2 p. m., June 21, 1916.

From Standpoint of Employees:

Merit System and Permanent Tenure, Eight-hour Day, One Day in Seven of Rest and Automatic Wage Increase, Dr. F. J. Kern, Belleville, Ill.

Should They Live in the Institution or Off Grounds? Dr. A. L. Kilbourne, Rochester, Minn., and Dr. Rock Sleyster, Waupon, Wis.

The Duties of the State to the Medical Attendants, Dr. M. C. Hawley, Eling, Ill.

Entertainment and Recreation, Miriam E. Carey, State Board of Control, St. Paul, Minn., and Dr. Engene Cohn, Chicago State Hospital, Dunning, Ill.

From Standpoint of Nursing:

The Training School, Miss Mae Kennedy, Kankakee, Ill., and Dr. Edw. F. Leonard, Chicago.

The Beginning Attendant and How to Develop, Dr. Robt. Work, Pueblo, Colo., and Dr. C. C. Ellis, Chicago State Hospital, Dunning, Ill.

Commencement Day and Its Significance, Dr. Geo. Leininger, Chicago State Hospital, Dunning, Ill.

Women on Male Wards, Dr. Geo. Zeller, Springfield, Ill.

Thursday Morning, 9 a. m., June 22, 1916.

From Standpoint of Medical Service:

Classification of Patients—Individualization, Dr. Frank P. Norbury, Springfield, Ill. Discussion by Dr. Robt. Kershaw, Chicago State Hospital, Dunning, Ill.

Staff Meetings and Duties of Members, Dr. Richard E. Dewey, Wauwatosa, Wis., and Dr. Geo. Zeller, State Alienist, Springfield, Ill.

Research and Educational Work, Dr. Albert E. Sterne, Indianapolis, Ind., and Dr. H. Douglas Singer, Kankakee, Ill.

Social Service—Out Patient and After Care, Dr. Chas. P. Emerson, Indianapolis, Ind.

The Chronic Service, Dr. E. W. Milligan, North Madison, Ind.

Industrial Education of the Chronic Insane, Dr. Frank Billings, Chicago, Ill. Discussion by Dr. H. N. Moyer, Chicago, and Dr. Henry A. Cotton, Trenton, N. J.

Psychiatry, Dr. W. F. Lorenz, Mendota, Wis. Discussion by Dr. Harrison L. Mettler, Chicago.

The Insane Criminal, Dr. Paul E. Bowers, Michigan City, Ind.

Hydrotherapy, Dr. J. H. Kellog, Battle Creek, Mich.

Thursday Afternoon, 2 p. m., June 22, 1916.

Report of Committee on Feeble Mindedness, Dr. A. C. Rogers, Faribault, Minn., chairman; Dr. H. F. Leonard, Lincoln, Ill., secretary. General discussion.

The Treatment of Asthenic Conditions in Children, Dr. E. B. McCready, Wildwood, Pa.

What Education of the Feeble Minded Amounts to, Dr. Geo. Bliss, Ft. Wayne, Ind.

The Delinquent Defective in the Institution for Feeble-Minded, Dr. C. B. Caldwell, Lincoln, Ill.

Insanity and Feeble-Mindedness: Medico-legal Problems Connected with Them, Dr. Thos. J. Orbison, Los Angeles, Cal. Discussion by Judge Harry Olson, Chicago.

The Wasserman Test in Feeble-Minded, Dr. W. J. Hickson, Psychopathic Laboratory, Chicago.

Friday, 9 a. m., June 23, 1916.

Report of a Case of Bilateral Lenticular Degeneration, Dr. M. A. Bahr and F. C. Potter, Indianapolis, Ind.

Report of Cases of Folie de deux, Dr. S. N. Clark, Kankakee, Ill.

The Treatment of Tic Douloureux, Some Clinical Reports, Dr. G. Wilse Robinson, Punton Sanitarium, Kansas City, Mo.

Conjugal Tabes Dorsalis, Dr. T. B. Throckmorton, Des Moines, Ia.

An Unusual Neurological Case, Dr. C. B. Reitz, State Hospital, Allentown, Pa.

What Can Be Done for the Chronic Insane? Dr. Amy M. Peterson, Jacksonville, Ill.

Lesions of the Temporal Lobe Involving the Naming Center, Dr. Edward Mercer Williams, Sioux City, Ia.

Friday, 2 p. m., June 23, 1916.

The Psychology of the Criminal Under the Sentence of Death, Dr. Paul E. Bowers, Michigan City, Ind.

Compulsory Typhoid Vaccination in a State Hospital Epidemic, Dr. Philip B. Newcomb, Osawatomie State Hospital, Osawatomie, Kan.

Treatment of Mental Cases in General Hospitals, Dr. Tom A. Williams, Washington, D. C. Discussion by Dr. Ralph Hamill, Chicago, and Dr. H. N. Moyer, Chicago.

The Duty of the State to Its Dependents, Dr. Sidney D. Wilgus, Rockford, Ill.

"The State Hospital," Its Purposes, Limitations and Handicaps, Dr. Wm. Hotchkiss, Jamestown, N. D.

Epilepsy, Dr. Wesley Taylor, Detroit, Mich.

Difficulty in Determining Responsibility in Epileptic Amnesic Attacks, Dr. Geo. Donohoe, Cherokee, Ia.

Notice.—Those appearing on the program the last day—Friday—will be called upon first, in the absence of those placed earlier on the program.

Each paper to be discussed separately.

CHICAGO MEDICAL SOCIETY

Regular Meeting, May 3, 1916

1. "What Is Military Surgery?" Major G. M. Blech, Medical Corps, Illinois National Guard.

2. "Training of a Medical Officer," Major James M. Phalen, Medical Corps, United States Army.

Discussion: Lieut.-Col. W. N. Banister, Lieut-Col. Jacob Frank, Col. Wm. Stephenson, Major P. J. Sullivan, Major W. J. Swift.

Public Welfare Meeting, May 10, 1916

"Moving Picture Demonstration of the Activities of the Living Organisms of Syphilis and of the Sleeping Sickness," Wirt W. Hallam, Secretary, Illinois Vigilance Association.

Regular Meeting, May 24, 1916

"The Problem of Vaccine Therapy," G. H. Sherman, Detroit, Mich.

Discussion: Adolph Gehrmann, Joseph Miller, Joseph F. Biehn, Maxmilian Herzog, Benj. Gruskin.

Regular Meeting, May 31, 1916

1. "Surgical Treatment of Acute Epididymitis," (Report of Cases), Charles M. McKenna.

2. "Syphilis in Women," George Gellhorn, St. Louis, Mo.

3. "The Action of Radium Rays on Inoperable Uterine Carcinomata" (With Lantern Slide Demonstration), Henry Schmitz.

CHICAGO OPTHALMOLOGICAL SOCIETY.

A regular meeting was held February 14, 1916, with the president, Dr. William E. Gamble, in the Chair.

Dr. Harry S. Gradle reported a Case of Conjunctivitis Hypertrophica Plasmocellularis, and exhibited the patient.

DISCUSSION.

Dr. Francis Lane stated that the sections of the tissue given him by Dr. Gradle were not satisfactory, owing to imperfect paraffin embedding. However, all the layers of the conjunctiva were hypertrophied. The epithelium was thickened and contained numerous goblet cells throughout. Those in the superficial layers of the epithelium were the larger and appeared to have open stomata, as if expelling their contents.

These cells were first described by Stieda a number of years ago and were increased materially in chronic conditions of the conjunctiva and have been compared with the cells of the mammary gland in that they are not deformed after expelling their contents. They are true unicellular mucous glands and it is because of their integrity that the epithelium does not desiccate after the extirpation of the lachrymal glands.

The basement membrane is rather wavy and the subepithelial stratum is infiltrated with both large and small plasmo cells with a certain amount of connective tissue formation, indicating a chronic process.

The so-called fibrous stratum, instead of consisting of dense connective tissue, is markedly infiltrated with small, round cells and fewer large fainter staining cells almost like epithelial cells undergoing degeneration.

In no sense of the word does the microscopic picture resemble trachoma, follicular conjunctivitis, spring catarrh or tuberculosis, but more like lymphoid hypertrophy of both layers of the substantia propria.

Dr. Harry S. Gradle, in closing the discussion, stated that a case, very thoroughly studied, was reported by Elschnig in the *Medicinische Klinik* of 1914. This was an acute case, therein differing from the others, which were of the subacute or chronic type. In Elschnig's case, which was treated for over five months, a cure only followed complete excision of the transitional folds and a large portion of the conjunctiva. The blood picture returned to normal shortly after the patient was cured. The pre-auricular and submaxillary lymphatic glands in this patient were extirpated and found to consist of lymphoid hyperplasia; consequently Elschnig considered this a local manifestation of a general disease affecting the lmphoid-producing structures of the conjunctiva, the infection manifesting itself by swelling of the pre-auricular and cervical glands and by a peculiar plasmocellular hypertrophy of the conjunctiva. We cannot take it for granted that a generalized infection is essential here, because the conjunctiva in itself is a part of the hematopoietic system, in that it can produce new lymphocytes; we, therefore, are dealing probably with a localized rather than generalized condition.

The speaker said he would follow the suggestion of Dr. Suker of massaging with 10 per cent. ichthyol ointment, because the boy has shown improvement under 2 per cent. solution of ichthyol. Before he attempts excision of the transitional folds he will try this.

CYST OF THE IRIS.

Dr. Fred W. Bailey, Cedar Rapids, Iowa: The patient is Miss C., aged 16, whom I brought here with a provisional diagnosis of cyst of the iris following traumatism. This girl was injured eight years ago by a punctured wound which penetrated the cornea in the upper nasal quadrant for a distance of one-eighth of an inch. She was incapacitated for two weeks at the time, and from that time on she noticed nothing wrong with the eye until last November, when she was husking corn in the field, and one of the men in throwing a near of corn in the wagon, accidentally threw it against her eye and caused pain. She said her sister looked at the eye and noticed a growth in it which almost covered the entire pupil, as she stated.

I saw the patient three weeks after this, at which time there was a growth in the anterior chamber which almost filled the entire pupillary area. After introducing homatropin and dilating the pupil, I noticed there was not only a growth in the anterior chamber, but one in the posterior chamber, which was a little lower down, and also toward the nasal side, and which was pigmented. Those who saw the case noticed the growth in the anterior chamber as non-pigmented and absolutely translucent, while the one in the posterior chamber is pigmented.

I brought the patient before the Society because I was rather undecided just what to call it. I have called it a cyst of the iris, but I am undecided as to the nature of the growth in the posterior chamber, wondering whether it might be malignant because of the pigmentation.

(To be continued.)

FULTON COUNTY.

The seventy-fifth meeting of the Fulton County Medical Society was held in the Auditorium of the Y. M. C. A. Building in Canton and was called to order May 9, at 1:30 p. m., by President Allison.

The special fee bill committee appointed at the last meeting reported that nothing had been accomplished.

On motion the committee was discharged and the

president appointed Drs. Adam and Gray to confer with the Board of Supervisors regarding the County Fee Bill.

Communication from State President Lillie concerning reorganizing the Medical Department of the United States Army was read.

Stoops and Howard moved that the Fulton County Medical Society favor the above and so instruct their Delegate.

Dr. Howard presented a paper, "Roentgen Ray Observations of the Appendix with Special Reference to Technique," with illustrations.

Dr. E. P. Coleman presented "Report of Some Interesting Cases of Acute Nephritis Following Streptococcus Grippe Infection."

These two papers were freely discussed and the authors received a unanimous vote of thanks.

Sixteen members were present.

Adjourned. D. S. RAY, Secretary.

JO DAVIESS COUNTY.

The Jo Daviess County Medical Society met in the Masonic Hall, Stockton, April 26, 1916, at 1 p. m. In the absence of the president Dr. I. C. Smith acted as president pro tem.

Upon roll call the following responded: Nadig, Stafford, Runkle, Snyder, Smith, D. G., and Smith, I. C., with Drs. Holke of Freeport and Shook of Pearl City as visitors.

The minutes of the previous meeting were read and approved.

The secretary and treasurer's report was read as follows: The society has held three regular meetings during the past year with an average attendance of twenty-one physicians present. Receipts for the year amounted to $119.03; expenditures for the year amounted to $88.00, leaving a balance in the hands of the treasurer of $21.03.

Election of officers for the ensuing year resulted as follows: President, A. T. Nadig; vice-president, G. M. Tyrrell; secretary and treasurer, T. J. Stafford; censor for one year, F. W. Boots; censor for two years, I. C. Smith; delegate, D. G. Runkle; alternate, E. M. Bench.

After the business part of the meeting was completed Dr. K. F. Snyder of Freeport read a very modern and interesting paper on the "Cure of Tuberculosis of the Spine by Means of Bone Grafting." The doctor reported a case which he treated by the above method which he hoped to bring to the society at some future meeting. On account of bad road condition Drs. D. F. Downing and J. H. Shrup were unable to be present to read their papers.

The society adjourned to meet in Galena in July.

A. T. NADIG, Secretary.

LA SALLE COUNTY.

The sixty-third annual meeting of the La Salle County Medical Society was held at Ottawa, Ill., on Tuesday, April 25, 1916. The Ottawa City Medical Society invited the La Salle County Medical Society to a dinner. An excellent program was offered, and an unusually good meeting was held. The program was as follows:

Treatment of Fracture of the Femur, Dr. J. H. Edgcomb, Ottawa.

Diagnosis and Treatment of Gastric Ulcer, Dr. W. J. Butler, Chicago.

Tumors of the Breast (Illustrated by lantern slides), Dr. Fredric A. Besley, Chicago.

Back Ache, Acute and Chronic, from a medical standpoint (Illustrated by lantern slides), Dr. P. B. Magnuson, Chicago.

Diagnosis and Treatment of Acute Appendicitis (Conclusions based on 20 years' of clinical experience), Dr. E. P. Cook, Mendota.

Tuberculin, Dr. L. J. Quillan, Streator.

MADISON COUNTY.

Our Annual Banquet.

If you were not present at our annual banquet given at the St. James Hotel on the evening of May 4, you certainly missed a very enjoyable occasion. Music, both instrumental and vocal, was furnished by three young ladies, the daughters and a guest of our hostess, which was highly appreciated and added not a little to the enjoyment of the evening.

It was the best attended of any of our banquets and proved to be a highly enjoyable function. Forty-six guests sat down to the feast and there was no lack of good things to eat. No business meeting was held and after the address of welcome the speaker of the evening, Dr. Willard Bartlett, of St. Louis, was introduced, who delivered a very fine address on "The Physician and the Community at Large." After a hearty vote of thanks to our speaker, the society adjourned to meet at Beverly Farms, Godfrey, Ill., on June 2, 1916, to which meeting Dr. W. H. C. Smith, our host, issued an invitation to all of our members and their ladies.

Those present at the banquet were: Dr. and Mrs. R. D. Luster; Dr. and Mrs. E. A. Cook; Dr. and Mrs. W. H. C. Smith; Dr. and Mrs. H. C. H. Schroeder; Dr. and Mrs. E. C. Ferguson; Dr. and Mrs. Chas. R. Kiser; Dr. John R. Sutter, Jr., and Mrs. John R. Sutter, Sr.; Dr. and Mrs. J. B. Hastings; Dr. and Mrs. R. S. Barnsback; Dr. and Mrs. Willard Bartlett; Dr. and Mrs. E. W. Fiegenbaum and Miss Edna Fiegenbaum; Dr. and Mrs. L. G. Burroughs; Dr. and Mrs. J. H. Siegel; Dr. and Mrs. J. A. Hirsch; Dr. and Mrs. Chas. G. Schmidt, Dr. Jos. Pogue and Miss Kathryn Pogue; Dr. Fred Wade Jones and Miss Mary Krome; Dr. and Mrs. O. C. Church; Dr. and Mrs. Louis H. Hayes; also Dr. R. W. Binney, Dr. F. O. Johnson, Dr. F. W. Kerchner, Dr. L. C. Schreifels; Dr. Mather Pfeiffenberger, Dr. H. E. Wharff and Dr. J. Morgan Sims.

National Delegate.

Madison County will be represented at the Detroit meeting of the American Medical Association, June 12 to 16. Dr. Mather Pfeiffenberger, of Alton, is

a member of the National House of Delegates, having been chosen by the Illinois Medical Society as one of the state representatives. He is planning to be there throughout the session.

MORGAN COUNTY.

Morgan County Medical Society met at the Library, Jacksonville, April 13, 1916, with Dr. Hardesty, president, in the chair. Meeting called to order at 8 p. m.

Dr. Grace Dewey was elected vice-president to fill vacancy, Dr. E. A. Foley, former vice-president, having removed to Watertown.

Dr. Black announced the status of the Library account.

The program was a symposium on tuberculosis. The subject was opened by Dr. H. C. Woltman on the "Clinical Symptoms." He emphasized the necessity for the early recognition of the disease.

Dr. Grace Dewey read a paper on "X-Ray Diagnosis and Tuberculin Treatment." Dr. Cole took the "Clinical Diagnosis" and Dr. Josephine Milligan closed the subject with a paper on "The Social Aspect." The papers were extensively discussed by the physicians present.

Meeting May 11, 1916.

After the business session Dr. F. A. Norris read a paper on "Post-Operative Thrombus and Embolus," showing probable cause and clinical manifestations, with report of pulmonary and cerebral cases. The subject was freely discussed by the members present with several other case reports.

THOMAS G. MCLIN, Secretary.

PIKE COUNTY.

The Pike County Medical Society held its annual meeting at the Pittsfield House, Pittsfield, April 27. There was a large attendance and much interest shown in both the program and the business session following it. On account of bad roads many who expected to motor in from a long distance were unable to do so.

The program was furnished by two well-known members of the State society, Dr. Frank Norbury of Springfield and Dr. Carl Black of Jacksonville. The first took as his subject, "Sleep and Its Disorders"; the second, "War and Peace." The first was well illustrated with charts and diagrams; the second, by means of lantern slides and the stereopticon. Those who missed these papers certainly missed a scientific treat. Want of space prevents a resume of these papers, which they richly deserve.

Dr. Lillie of East St. Louis was expected to be present and speak on the subject of "The Cancer Problem," but was unable to be present. Dr. Center of Quincy, Councilor of the Sixth district, was also unable to attend.

The society passed resolutions approving the plan of the reorganization of the Medical Department of the U. S. Army. The approval of the contemplated amendment of the Medical Practice Act was endorsed.

The board of censors for the ensuing year consists of Drs. Rainwater, Kaylor and Lacy. One new application for membership was presented at this meeting.

The Red Cross committee for the ensuing year consists of Drs. R. P. Wells, Goodin, Goodman, Smith and Shastid.

Officers elected for 1916-17: Dr. R. P. Wells, Pleasant Hill, president; Dr. J. R. Pollock, Nebo, vice-president; Dr. W. E. Shastid, Pittsfield, secretary-treasurer.

Copy of resolutions on the death of Dr. L. J. Harvey, Griggsville, was mailed his bereaved family and entered on the minutes of the society.

The next meeting of the society is a joint one with the Pike County (Mo.) society at Pleasant Hill, July 27. A big "fish-fry" is on hand and all members invited.

W. E. SHASTID, Secretary.

Personals

Dr. A. Lee Alderson has located in Pana.

Dr. A. A. Crooks has removed from St. Louis to Peoria.

Dr. John D. Witt has removed from Freeport to Aurora.

Dr. I. W. Bach has removed from Champaign to Pontiac.

Dr. F. B. Van Wormer has removed from Alton to Lincoln.

Dr. F. E. Ellison has removed from Argyle, Ill., to Monticello, Minn.

Dr. R. J. Coultas was appointed city health officer of Mattoon on May 22.

Dr. F. J. Haessler was elected president of the Chicago Heights Country Club May 3.

Dr. P. J. H. Farrell has removed to new offices at 25 East Washington street, Chicago.

Dr. John H. Murphy, Chicago, is doing postgraduate work this summer at various hospitals.

Dr. Paul G. Pomeroy, district physician at Gatun in the Canal Zone, is visiting at Lawrenceville.

Dr. G. F. Johnson, formerly of East Moline, has returned to that city after several years in Los Angeles.

Dr. Anna Windrow Holm addressed the Medical Woman's Club, Chicago, on "Parental Influence," May 10.

Dr. H. F. Lotz has returned to Lemont after a sojourn of several months in Arizona and California for his health.

Dr. H. B. Moe has removed from Rockford to Poplar Grove, succeeding Dr. George Markley, who goes to Belvidere.

Dr. W. E. Scarborough, of Sullivan, has enlisted in a Canadian Medical Corps with a hope of seeing service in Europe.

Dr. John T. Montgomery, Charleston, formerly a trustee of the State University, is reported to be critically ill as the result of a fall.

Dr. O. W. Hewitt, of Flanagan, has sold his practice to Dr. E. V. Wilcox and has removed to Pontiac, where he will start a sanitarium.

Dr. Walter A. Gekler has assumed the position of medical director of the Municipal Tuberculosis Sanatorium, succeeding Dr. John W. Coon.

Dr. John W. Coon will, it is understood, build and manage a private tuberculosis sanatorium in the lake region of Waukesha county, Wis.

Dr. Walter E. Scarborough, Sullivan, formerly coroner of Moultrie county, has accepted a position as surgeon with the Canadian troops.

Dr. James B. Herrick delivered an address at the annual graduating exercises of the Rockford Hospital Training School for Nurses June 2.

Dr. H. G. W. Reinhardt, coroner's physician, stands to lose a nice fee of $100 for testifying in an insurance case, owing to the coroner's edict.

Dr. Ameen U. Fareed addressed the Cook County Real Estate Board, May 16, on his experiences as a Red Cross physician in the war in Europe.

Dr. Ethan A. Gray has been appointed a member of the committee on business management of the Chicago Municipal Tuberculosis Sanatorium.

Dr. Harry A. Salzman, Chicago, has given up private practice to accept a position as surgeon in the United States Coast and Geodetic Survey at Manila, P. I.

Dr. R. M. Curtiss, Marengo, recently settled for $800 a judgment he secured for $1,500 against the county for attendance on smallpox cases. His original claim was for $4,700.

Dr. John S. Nagel made an address before the Livingston County Medical Society at Pontiac, May 4, on "The Senile Prostate," and Dr. Paul Gronnerud, an address on "Hysterectomy."

Dr. Orville W. McMichael has been elected, by the Chicago Tuberculosis Institute, attending physician of the Edward Sanatorium, Naperville, succeeding the late Dr. Theodore B. Sachs.

Dr. James F. Churchill has removed from 104 South Michigan boulevard, Chicago, to San Diego, California. The best wishes of many professional and social friends will follow him.

Dr. Charles A. Elliott spoke before the Sangamon County Medical Society at Springfield, April 24, on "Gastric Secretions, Motility, Technic and Value of the Fractional Test Meal."

Dr. H. Douglas Singer, director of the State Psychopathic Institute, Kankakee, spoke before the Pittsburgh Neurological Society, May 4, on "Dynamic Psychology and the Practice of Medicine."

Dr. Alexander S. Rochester, after spending a year in California, has returned to his former office at 7 West Madison street, Chicago. He has been appointed assistant ophthalmologist and otologist to St. Luke's hospital.

Dr. Eugen Cohn, assistant superintendent of the Kankakee State Hospital and recently transferred to the Chicago State Hospital, was the guest of honor at a dinner tendered him by the staffs of the Kankakee State Hospital and Psychopathic Institute, April 27.

Dr. Wm. J. Uppendahl writes in an interesting manner of his experiences in the 23rd General Hospital, B. E. F., "somewhere in France," one of his aphorisms is: "If you meet any of those advocates of unpreparedness, put them out of their misery."

Dr. W. E. J. Michalet, Chicago, a graduate of Rush, class of 1879, has been twice attacked by robbers within three years and was held up once. The latest attack occurred May 8 in his office, where two men exchanged shots with the doctor, who chased them down stairs to the street. Two patients were severely wounded by the fusillade.

Dr. William Healy of the Cook County Psychopathic Institute delivered an address before the Chamber of Commerce of Des Moines, May 3, and in the afternoon delivered a public lecture under the auspices of the Chamber of Commerce, the City Federation of Teachers and the Board of Education.

Dr. George F. Suker spoke on "The Eye Symptoms in Disease of the Hypophysis" from the standpoint of the general practitioner, and Dr. Frank E. Simpson delivered an address on "Radium in the Treatment of Cancer and Various Diseases of the Skin," before the Linn County Medical Society at Cedar Rapids, April 26.

After a three years' study of Neurology and Psychiatry in Germany and England, Dr. J. Elliott Royer has returned and has located in Chicago. Since the war he served in the Neurological Military Service in the London hospitals. At the annual meeting of the Chicago Neurological Society, May 18, Dr. Royer read a paper on "Cerebral Injuries of Warfare as Observed in the London Hospitals." His address is 30 North Michigan boulevard.

News Notes

—Peoria has a new Isolation hospital at Waterworks Point with accommodations for 24 patients.

—The Elgin Physicians Club elected Dr. H. E. Kerch of Dundee, president; Dr. H. Knight, Jr., secretary and treasurer, and Dr. H. K. Scatliff, chairman of the executive committee.

—A new branch laboratory of the state board of health was opened, May 15, at Champaign, under the charge of Dr. F. S. Sperry. The new laboratory is to be known as the East State Laboratory.

—The State Board of Administration is said to have established a leper colony at Watertown. One patient is now installed there and it is probable that other cases developing in the state will be cared for at the same place.

—The press referred to Charles Van Dyke Waters, recently convicted of wife murder at Charleston as a physician. It is to the credit of the profession that his name is not to be found in any official list of licensed physicians.

—Owing to the withdrawal of troops from their regular stations for duty on the Mexican border, the War Department has been compelled to abandon the camps of instruction for officers of the Medical Reserve Corps, that were to be held during the coming summer.

—The Howard Taylor Ricketts prize for research work done by students in the Departments of Pathology and Bacteriology of the University of Chicago, which is awarded each year on May 3, the anniversary of Dr. Ricketts' death from typhus fever, has this year been awarded to Oscar J. Elsesser.

—The Crane Company of Chicago is making extensive improvements at its sanatorium, Buffalo Rock. Dr. Andrew M. Harvey, Chicago, is in active charge and has taken up a plan with the company for the housing of women and children and families. Heretofore provision has been made only for men.

—Members of the Municipal Tuberculosis Sanitarium staff, who resigned after the change in management, are reported to have located as follows: Dr. Martin I. Marshak is superintendent of the Jewish Consumptive Relief Society Sanatorium, Edgewater, Colo.; Dr. Francis F. Callahan has a position on the staff of the Sea View Hospital, New York; Dr. Arthur G. Compton is on the staff of the Washington, D. C., Consumptive Hospital, and Dr. Robert G. Allison is to be superintendent of the Pokegema Sanatorium near St. Paul, Minn.

—On May 9 to 11 the ceremonies celebrating the fiftieth anniversary of the founding of the Alexian Brothers' Hospital were held. Since the foundation of the hospital by Brother Bonaventure Thelen in 1866, more than 100,000 patients have been treated in the hospital. The anniversary commenced with pontifical high mass conducted by the Archbishop of Chicago, and, in connection with the ceremonies, several of the brothers were especially honored. A large hospital fund is being raised in connection with the jubilee and the hospital will be opened to friends and supporters of the institution and to the public at large.

Marriages

W. H. Evans, M. D., to Miss Louise Borgers, both of Murphysboro, on May 23, 1916.

Oscar G. Fischer, M. D., to Miss Charlotte Louise Ferguson, both of Chicago, April 24.

Abraham Morris Siegel, M. D., Chicago, to Miss Rachel Fred of Lebanon, Ohio, April 9.

Audrey Goss, M. D., Chicago, to Mr. T. J. Morgan of Washington, D. C., at Wytheville, Va., April 16.

Louis Bernard Knecht, M. D., Poplar Bluff, Mo., to Miss Lottie Oughton of Belleville, Ill., April 19.

WINIFRED A. YELTON ROBB, M. D., to Judge James P. Jack, both of Newton, Ill., at Danville, Ill., March 29.

MARTIN H. MERBITZ, M. D., Chicago, to Miss Norma Helen Irasek, Milwaukee, at Milwaukee, May 17, 1916.

LOUIS WILLIAM DUNAVAN, M. D., to Mrs. Elizabeth M. Wright, both of Chicago, at Valparaiso, Ind., April 17.

Deaths

LEWIS D. WILEY, M. D., New Berlin, Ill.; University of Louisville, Ky., 1887; aged 63; died at his home, April 4, from nephritis.

DAVID DUNCAN, M. D., Chicago; Hahnemann Medical College, 1887; aged 68; died at his home, May 3, from heart disease.

GEORGE M. BASSETT, Vandalia, Ill. (license, Illinois, years of practice, 1878); aged 66; died at his home, April 14, from bronchopneumonia.

JOHN DEAL, M. D., Riverton, Ill.; Vanderbilt University, Nashville, Tenn., 1878; aged 67; a Fellow of the American Medical Association; died at his home, February 3.

ROBERT G. SCHALLER, M. D., Alton, Ill.; University of Munich, Bavaria, 1889; aged 69; a member of the Illinois State Medical Society; died suddenly at his home, May 12.

SAMUEL HENRY, M. D., Camp Point, Ill.; New York Medical College, New York City, 1853; aged 89; for sixty-two years a practitioner of Camp Point; died at his home, April 14.

JOHN ROSS HINDE, M. D., Los Angeles; Rush Medical College, 1902; aged 40; formerly a Fellow of the American Medical Association and a practitioner of Lewistown, Ill.; died in Los Angeles, about April 21.

FERDINAND ENGELBRECTSON, M. D., Chicago; Dearborn Medical College, 1907; aged 53; a Fellow of the American Medical Association; associate surgeon for the Rock Island System; died at his home, April 23, from heart disease.

VICTOR A. BLES, M. D., Denver, Colo.; University of Colorado, School of Medicine, Boulder, 1895; a member of the medical staff of the Elgin State Hospital, on leave of absence account of poor health; died in Denver, Colo., May 13.

FRANK A. JORDAN, M. D., Freeport, Ill.; Rush Medical College, Chicago, 1864; aged 76; a veteran of the Civil War; a practitioner at Pecatonica, Ill., till his retirement in 1911; died at the home of his daughter in Freeport, Ill., May 15, of paralysis.

JOHN A. BARR, M. D., Fountain Green, Ill.; College of Physicians and Surgeons, Keokuk, Ia., 1875; Jefferson Medical College, 1877; aged 68; coroner of Hancock county, Illinois, for two terms; died at his home, April 20, from tuberculosis.

EARL HENRY TREZONA, M. D., Gibson City, Ill.; Hahnemann Medical College, Chicago, 1911; aged 29; while driving over a grade crossing of the Wabash Railroad at Garber, Ill., in his automobile, April 30, was struck by a train and instantly killed.

BUEL SMITH BIGELOW, M. D., Chicago; University of Vermont, Burlington, 1863; aged 76; died in the Henrotin Memorial Hospital, Chicago, April 24, from cancer of the cecum, for the relief of which an operation had been performed a few days before.

N. NOBLE VANCE, M. D., Bement, Ill.; Medical College of Ohio, Cincinnati, 1868; aged 71; for many years a practitioner of Bement; a veteran of the Civil War; died at his home in that city about May 10, following four years disability from cerebral hemorrhage.

JOSEPH STUDER, M. D., Peoria, Ill.; University of Basel, Switzerland, 1853; aged 87; one of the founders of St. Francis' Hospital, Peoria, in 1876, and a member of the staff for many years; who moved to California in 1910; died at his home in Los Angeles, April 7.

ELBERT WING, M. D., Los Angeles, Cal.; Northwestern University Medical School, Chicago, 1882; for more than twenty years a practitioner in Chicago until his removal to Los Angeles about ten years ago; vice-president of the Sewell-Clapp Envelope Company; died in Los Angeles, May 8.

ALEXANDER H. HEPBURN, M. D., Chicago; Northwestern University Medical School, 1899; aged 41; a member of the Illinois State Medical Society and a veteran of the war with Spain in which he served as a member of the First Illinois Cavalry, U. S. V.; died suddenly, May 9, from diphtheria.

GEORGE RUTLEDGE COWAN, M. D., Granite City, Ill.; Washington University, St. Louis, 1884; aged 59; a Fellow of the American Medical Association and a well known practitioner of Girard, where he practiced until 1902, Joliet and Granite City; died at his home in the latter city, April 2, from arterio-sclerosis.

FRANK LLOYD BRONSON, M. D., Las Vegas, N. M.; Northwestern University Medical School, Chicago, 1908; aged 32; a member of the Illinois State Medical Society and formerly a pediatrist of Streator, Ill.; who moved to New Mexico on account of his health a few months ago; died at his home in Las Vegas, April 6.

WILLIAM JACKSON SEELY, Red Bud, Ill. (license, years of practice, Illinois, 1887); aged 83; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; a practitioner of Randolph county, Illinois, for fifty-three years; died at the home of his daughter in Realitas, Tex., March 12.

PAUL DUNCAN MCMILLAN, M. D., Chicago; Washington University, 1905; aged 38; a member of the medical staff of Cook County Infirmary, Oak Forest, Ill.; who was operated on for removal of the spleen

a year ago, on account of Banti's disease; died in the Cook County Infirmary, May 4, from intestinal hemorrhage.

ALVAN FELCH BUCKHAM, M. D., Warren, Ill.; Medical School of Maine, Brunswick, 1864; aged 78; formerly a Fellow of the American Medical Association; assistant surgeon of the Second Massachusetts Volunteer Cavalry during the Civil War; said to have been the oldest practitioner of Jo Daviess county; died at his home, May 4.

WILLIAM H. SPARLING, M. D., Moweaqua, Ill.; Detroit College of Medicine and Surgery, 1872; aged 66; a Fellow of the American Medical Association; formerly president of the Central Illinois District Medical Society; local surgeon to the Illinois Central system; member of the National Association of Railway Surgeons; died at his home, April 3.

LEWIS D. DUNN, M. D., Moline, Ill.; Rush Medical College, 1857; aged 81; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years surgeon of the local ship's crew of the Illinois Naval Militia, with service during the Spanish-American War; for forty years local surgeon of the Rock Island System; formerly president of the Illinois State Board of Health; president of the Moline Library Board for many years and for eight years a member of the common council of Moline; died at his home, April 25, from cerebral hemorrhage.

NEW AND NON-OFFICIAL REMEDIES.

During May the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

Hyson, Westcott & Co., Enteric Coated Glycotaura Tablets.

H. C. Merker Co., Petroagar and Petrobran.

Monsanto Chemical Works, Phenolphthalein-Monsanto.

Standard Chemical Co., Standard Radium Solution for Drinking (1 Microgram Ra).

Mead's Dry Malt Soup Stock.—A mixture containing desiccated maltose and desiccated dextrin (about equal parts), 47 per cent., wheat flour 47 per cent., potassium carbonate 1 per cent. and moisture 5 per cent. Mead Johnson & Co., Jersey City, N. J. (Jour. A. M. A., May 20, 1916, p. 1623).

Phenolphthalein-Monsanto.—A non-proprietary preparation of phenolphthalein admitted to New and Non-official Remedies (Jour. A. M. A., May 20, 1916, p. 1623).

Book Notices

A MANUAL OF GYNAECOLOGY AND PELVIC SURGERY FOR STUDENTS AND PRACTITIONERS. By Roland E. Skeel, A. M., M. S., M. D. Associate Clinical Professor of Gynaecology, Medical School of Western Reserve University; Visiting Surgeon and Gynaecologist to St. Luke's Hospital, Cleveland; Fellow of American Association of Obstetricians and Gynaecologists; Fellow of American College of Surgeons. With two hundred and eighty-nine illustrations. Philadelphia. P. Blakiston's Son & Co., 1012 Walnut street. $3.00 net.

This volume by Skeel is intended as a working hand book of Gynaecology. It contains six hundred and eighty pages of text and two hundred and eighty-nine illustrations, and is replete with references. These references will be of value to the specialist or to the practitioner who wishes to thoroughly cover the literature. The author deals particularly with diagnosis and treatment. The work is concise, but covers a large field. It will be particularly useful to the student.

THE MORTALITY FROM CANCER THROUGHOUT THE WORLD. By Frederick L. Hoffman, LL. D., F. S. S., F. A. S. A.; Statistician the Prudential Insurance Company of America; Chairman Committee on Statistics, American Society for the Control of Cancer; Member American Association for Cancer Research; Associate Fellow American Medical Association; Associate Member American Academy of Medicine, etc., etc. The Prudential Press, Newark, New Jersey, 1915.

This volume of statistics from the Prudential Insurance Company compiled by Dr. Frederick L. Hoffman is the most extensive and comprehensive compilation of statistics on cancer we have seen. The Prudential and Dr. Hoffman are to be commended for placing this vast amount of data before the profession. The volume contains 826 pages, and gives cancer statistics from all the large insurance companies, and from all parts of the world, with observations from competent observers. Every physician or surgeon who is treating cancers should look over these statistics.

ELEMENTARY BACTERIOLOGY AND PROTOZOOLOGY. For the Use of Nurses. By Herbert Fox, M. D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Second Edition, Revised and Enlarged. 12mo, 251 pages, with 68 engravings and 5 colored plates. Cloth, $1.75, net. Lea & Febiger, Philadelphia and New York, 1916.

This work was designed as an elementary text-book of Bacteriology and Protozoology for nurses. Without being technical, it gives a good idea of the nature of micro-organisms, and then discusses with more emphasis the ways in which bacteria pass from one individual to another, how they enter the body and act when once within, and their manner of exit. Such general information concerning the character of the disease process has been included as seemed necessary to clarify the nature of microbe action. In other words, the author has endeavored to show in the simplest manner how bacteria produce disease.

In the second edition much has been added concerning general disinfection, the transmission of infection, especially in regard to those diseases spread by insects, and the peculiar phenomena of hypersusceptibility, a subject which becomes wider in its significance as we learn more about it.

GUNSHOT ROENTGENOGRAMS—A collection of Roentgenograms taken in Constantinople during the Turko-Balkan War, 1912-1913, illustrating Some Gunshot Wounds in the Turkish Army. By Clyde S. Ford,

Major, Medical Corps. War Department: Office of the Surgeon General. Bulletin No. 9, October, 1915. Published by authority of the Act of Congress approved March 3, 1915, and with the approval of the Secretary of War, for the information of Medical Officers. United States Army Medical Department. Washington Government Printing Office. 1916.

A very interesting collection of Roentgenograms, and should be of especial value to those practicing Military Surgery.

THE OFFICIAL AUTOMOBILE BLUE BOOK—Touring Information for the Year, 1916. Vol 1, New York State and Canada; Vol. 2, New England and Eastern Canada; Vol. 3, Pennsylvania, New Jersey and the South; Vol. 4, The Middle West; Vol. 5, Mississippi River to Pacific Coast; Vol. 6, The South; Vol. 7, Pacific Coast States. Price, $2.50 per volume. Published with the exclusive official endorsement of the American Automobile Association by the Automobile Blue Book Publishing Co., Chicago, Mallers Bldg.; New York City, 243 West 39th street. Copyrighted, 1915, by the Automobile Blue Book Publishing Company.

An authoritative route guide is a part of the necessary equipment of every automobile. Doctors are all touring to a greater or less degree. Everyone knows where he wants to go, but does not know the routes, the kind of roads, distances, what to avoid, etc., and for all this the Automobile Blue Book is indispensable. Each of the volumes covers a particular section of the country, and gives much data necessary to the tourist. These data include maps and information about roads, distances, hotels, garages, etc. The volumes are neatly bound, limp and of convenient size. The Good Roads Propaganda has added many miles of new roads each year, and the 1916 edition of the Blue Book describes these new routes to date.

A TEXT-BOOK OF FRACTURE AND DISLOCATIONS, WITH SPECIAL REFERENCE TO THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. By Kellogg Speed, S. B., M. D., F. A. C. S., Associate in Surgery, Northwestern University Medical School; Associate Surgeon, Mercy Hospital; Attending Surgeon, Cook County and Provident Hospitals, Chicago, Ill. Octavo, 888 pages, with 656 engravings. Cloth, $6.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

This work of Dr. Speed is a distinct addition to medical literature. A very large number of fractures are dealt with. Illustrations are numerous and are largely tracings from Roentgenograms. This gives an accurate illustration and has the advantage of distinctness. The author has classified fractures under their several anatomical divisions. Special emphasis is given to pathology, diagnosis and treatment. The work is designed to be of benefit to the general practitioner, and we recommend it to the profession.

THE MEDICAL CLINICS OF CHICAGO. Volume I, Number VI (May, 1916). Octavo of 239 pages, 22 illustrations. Philadelphia and London. W. B. Saunders Company, 1916. Published Bi-Monthly. Price per year: Paper, $8.00; Cloth, $12.00.

This number (May, 1916) of the Medical Clinics is if anything more interesting than its predecessors, and will add popularity to the publication. The subjects studied this month are those which the doctor sees frequently in his routine work, but frequently causes him trouble in diagnosis or treatment.

The Clinicians for this number are, Isaac A. Abt, M. D.; Joseph C. Friedman, M. D.; Walter W. Hamburger, M. D.; Ralph C. Hamill, M. D.; Charles L. Mix, M. D.; Robert B. Preble, M. D.; Frederick Tice, M. D.; Richard J. Tivnen, M. D.; Charles Spencer Williamson, M. D., and Joseph Zeisler, M. D.

BLOOD-PRESSURE: ITS CLINICAL APPLICATIONS. Second Edition, Revised and Enlarged. By George W. Morris, A. B., M. D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital; Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Phliadelphia. Octavo, 424 pages, with 102 engravings and 1 colored plate. Cloth, $3.00, net. Lea & Febiger, Publishers, Philadelphia and New York. 1916.

The importance of this topic is well shown by the issuance of a second edition in so soon a time. The subject is handled in this revision in the same way as in the first edition, which was reviewed at the time in this column. Much new matter has been added, which was necessitated by the large amount of literature on blood-pressure since the first edition. We believe the second edition will further the popularity made by the first edition.

GYNECOLOGY. By William P. Graves, M. D., F. A. C. S., Professor of Gynecology at Harvard Medical School. Octavo volume of 770 pages, with 424 original illustrations, 66 of them in colors. Philadelphia and London. W. B. Saunders Company. 1916. Cloth, $7.00, net; Half Morocco, $8.50, net.

This work is a welcome edition to the numerous text-books and reference works in existence. It is a combination text and reference book, making it valuable for both student and practitioner. It is conveniently divided into three parts. Part one is a thorough exposition on the physiology of the pelvic organs, and a rather new, but important topic, the relationship of gynecology to the general organism. Part two covers the diseases of the pelvic organs, thoroughly, but not too extensively. In this section recourse has been made frequently to pictures, especially those showing microscopic detail with text underneath, making it an eminently satisfactory method of presentation. Part three has to do with the technical side of gynecolic surgery. No attempt is made to present a large number of surgical operations, but only those which the author has found from personal experience, as he states, to be best suited to the condition at hand.

All in all the book shows the thorough understanding of the subject by the author, and should find a ready place as an authoritative text and reference. On account of the character of the illustrations, which are almost all original and excellent, rather heavy paper is required, which makes the volume somewhat heavy and large. The mechanical features of the book are all that can be desired. It is a work that can well find a place in the students' and practitioners' library.

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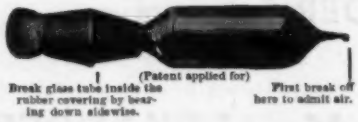
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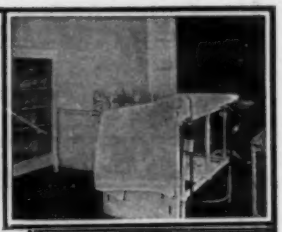

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